GROWTH IN RECESSION

AN ESTHETIC CASE SELECTION FOR STRAUMANN® EMDOGAIN™

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Dear Readers,

It is with great pleasure that we present to you the result of the Esthetic Case Competition summarized in this Esthetic Case Book.

Some of the most frequent reasons for recession treatment are esthetic considerations. The patient requires not only healthy teeth but an overall attractive look, along with a harmonious gingival line. Accordingly, the objective of this Esthetic Case Book is to show the amazing esthetic results that can be achieved when Straumann® Emdogain™ is used in combination with known surgical procedures for the treatment of gingival recession.

As members of the jury, we found it very enriching to evaluate the many cases received. At the same time, the high number and high quality of the cases submitted made the anonymous evaluation and selection process all the more challenging.

The overwhelming response to this case competition and its resulting Esthetic Case Book clearly show that the focus in periodontology, for both patient and professional, has shifted from the mere functional success of the surgical treatment to an increasing importance of a long-term and stable esthetic treatment outcome.

We would like to take this opportunity to sincerely thank all participants for their interest and effort in participating in the Esthetic Case Competition. Even though only a limited number of cases could be published in this Case Book, we hope that the participation in itself was a rewarding experience for all involved.

Sincerely,

Members of the Jury
INTRODUCTION

Gingival recession refers to the exposure of the roots of the teeth caused by a loss of gingival tissue and/or retraction of the gingival margin from the crown of the teeth. One of the dominating causative factors for the development of recession, especially in young individuals, is tissue trauma caused by vigorous toothbrushing. Among other factors that have been associated with recession are: alveolar bone dehiscence, inadequate gingival dimension, periodontitis and orthodontic treatment. In 1985, P. D. Miller proposed a classification of recession which allows for a relatively reliable prediction of the outcome of treatment regardless of the selected procedure.

**Miller Class I**
The recession does not reach the mucogingival border. There is no loss of interdental soft tissue or bone atrophy. Complete coverage of the recession is possible.

**Miller Class II**
The recession reaches or passes the mucogingival border. There is no loss of interdental soft tissue or bone atrophy. In these cases, too, complete coverage of the recession is possible.

**Miller Class III**
The recession reaches or passes the mucogingival border. There is slight interdental soft tissue atrophy (partial loss of the interdental papillae) and bone atrophy. Only partial coverage of the recession is possible.

**Miller Class IV**
There is loss of periodontal hard (bone) and soft tissue around the entire tooth or there is marked tooth deformity. Surgical treatment has low predictability.
In February 2008, the European Academy of Periodontology (EAP), a standing committee of the European Federation of Periodontology (EFP), invited 73 international researchers and clinical experts for a 5-day consensus meeting on “Contemporary Periodontics”. The event entailed several workshops and the proceedings were summarized in a Consensus Paper published in the Journal of Clinical Periodontology.3

In the workshop, which focused on Periodontal Tissue Engineering and Regeneration, Straumann® Emdogain™, the commercial formulation of enamel matrix derivative (EMD), was a major aspect in discussions. The workshop concluded that the application of Straumann Emdogain or connective tissue grafts (CTG) in conjunction with coronally advanced flap procedures (CAF) increases the probability of attaining complete root coverage in Miller Class I and II recessions. In terms of practical implications, these methods should be considered in conjunction with CAF to improve the probability of complete root coverage.4

Patients with gingival recession may suffer from root hypersensitivity, develop caries on the root surface and have impaired esthetics. Esthetic is not a medical indication, but it is nevertheless one of the most frequent reasons for recession treatment as patients want not only attractive and healthy teeth, but also a harmonious gingival line.

The 11 cases presented in this Case Book are the winners of the Growth in Recession campaign, an international case competition evaluating the natural esthetic outcome of root coverage procedures using Straumann Emdogain.

The submitted cases went through a stringent evaluation by an international jury of seven experts in the field of periodontal surgery. The jury included Prof. Giovanni Zucchelli, Prof. Stephan Hägewald, Prof. Alain Borghetti, Prof. Anton Sculean, Dr. Michael K. McGuire, Dr. Thomas G. Wilson and Prof. Véronique Benhamou (for more information on all members of the jury, see page 6).

The evaluation was supported by a scorecard developed and kindly provided by Prof. Giovanni Zucchelli based on his prior scientific work4 and professional expertise in the field of esthetic periodontology. The scorecard guaranteed that all experts were considering the same parameters during evaluation:

• Contiguity regarding the invisible confluence between the treated area and the adjacent soft tissues
• Color match between the treated site and the adjacent gingiva
• Correctly scalloped outline of the gingival margin in adjacent teeth (contour)
• Mucogingival junction alignment
• Appropriate amount of keratinized tissue
• Achievement of root coverage
• Thickness of the soft tissue
• Complexity of the case

In the next pages you will find clinical cases in which the clinicians have used Straumann®
Emdogain™ in conjunction with coronally advanced flap (CAF), connective tissue graft (CTG)
and tunneling for the treatment of single and multiple recession. For more information regarding
Straumann Emdogain, please do not hesitate to contact your local Straumann representatives.

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CASE 1
DESCRIPTION

In June of 2008, a 26-year-old, healthy, non-smoking female (ASC) was looking for treatment regarding several Miller Class I gingival recessions, affecting especially the upper jaw and ranging from 1.5 to 6.0 mm in depth. The main concern of the patient was to improve overall esthetics, but she also complained about cervical root hypersensitivity.

After the education phase of the treatment, in which adequate plaque control was established, clinical and radiographic exam did not show any proximal bone loss. The first procedure was performed on tooth #7 to #12, and one month later the single defect at tooth #5 was treated.

The patient was observed over the following 21 months. As far as we could observe, 100% root coverage was obtained in all defects (gingival margin is at the CEJ level or slightly coronal). The patient is happy with the clinical esthetic outcome and does not have any sign of cervical hypersensitivity.
Fig. 1: Unpleasant smile of the patient showing gingival disharmonies.

Fig. 2: Pre-op clinical aspect of the maxilla. Optimal plaque control. All defects are Miller Class I ranging from 1.5 to 6.0 mm and the papillae completely fills the proximal spaces.

Fig. 3: Close-up of the anterior upper region (#7-10). Tooth #8 is slightly tilted.

Fig. 4: Close-up lateral view of the left side (#11-13). The thickness and amount of the keratinized tissue is narrower than the adjacent second premolar.

Fig. 5: Close-up view of tooth #5 with one single defect.

Fig. 6: Flap elevation of anterior area. The epithelium of the papillae is removed to create a connective bed for coronal flap advancement. Apical sharp dissection eliminates the tension of the flap.

Fig. 7: Lateral view of the upper left side in which oblique incisions are used to create the flap design. Note the distal paramarginal incision around tooth #13.

Fig. 8: A CT graft is positioned and sutured over teeth #11 and #12 due to their defect extension and soft tissue profile.
Fig. 9: After mechanical debridement followed by root conditioning using PrefGel® (EDTA 24%), Emdogain™ is applied all over the roots and under the CT graft.

Fig. 10: Flaps are coronally advanced to the level of the CEJ and stabilized with vertical mattress sutures.

Fig. 11: Lateral view of the sutured coronally flaps (11-13).

Fig. 12: Emdogain™ is applied over the gingival margins for 5 minutes to foster soft tissue healing.

Fig. 13: Immediate post-op of tooth #5 treated with the coronally advanced flap associated with the CT graft and Emdogain. This site was treated one month after the first surgery.

Fig. 14: Harmonious patient smile 21 months after the surgery.

Fig. 15: Clinical post-op aspect of the upper jaw 21 months after surgery.

Fig. 16: Close-up view of the anterior region (#7-10), showing complete root coverage.

Fig. 17: Close-up of the left lateral region (#11-13) depicting complete root coverage and increase in gingival dimensions (width and thickness).

Fig. 18: Close-up of tooth #5 showing complete root coverage 20 months after surgery.
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CASE 2
DESCRIPTION

A 50-year-old, non-smoking female presented with 8.0 mm of facial recession #23. A Miller Class II recession defect was noted. The patient refused orthodontic therapy to correct anterior crowding. The first phase of treatment included non-surgical periodontal therapy.

Thorough root debridement and flattening of the root surface was completed followed by Straumann® PrefGel® (2 minutes) to prepare the root for Straumann® Emdogain™. The root was thoroughly rinsed and air-dried prior to the application of Emdogain. Incisions were made at the level of the CEJ to create a mesial and distal pedicle followed by vertical releasing incisions and partial thickness dissection. The individual pedicles were created and then sutured together as a double pedicle.

The maxillary left premolar palatal area was used for the donor tissue for the subepithelial connective tissue graft. After harvesting, the CTG was then sutured to the interproximal papillae and laterally to stabilize the graft. Emdogain was applied over the CTG and into the vestibule prior to coronally position the double pedicle (DP) graft. A periosteal releasing incision was made to coronally position the pedicle for tension-free suturing over the CT graft. The pedicle was intentionally positioned slightly coronal to the CEJ.

At twelve days, healing was excellent. At 3 months, 100% root coverage was achieved with 0.5 mm probing depth on the mid-buccal of #23. An increase in attached gingiva was achieved.
Fig. 1: Presentation of a 50-year-old, healthy, non-smoking female with #23 recession. 0.0 mm of KG is measured as well as 8.0 mm of facial attachment loss. A Miller Class II recession defect is noted.

Fig. 2: Close-up of #23 area.

Fig. 3: After thorough root debridement, PrefGel® is applied for 2 minutes. Emdogain™ is added onto the root surface after irrigation for 30 seconds and air-drying.

Fig. 4: Incisions are made at the level of the CEJ to create a mesial and distal pedicle with vertical releasing incisions. A partial thickness dissection is completed deep into the vestibule.

Fig. 5: The two individual pedicles have been formed and are lying passively in the vestibule.

Fig. 6: Emdogain is reapplied onto the root surface. The double pedicle (DP) flap has been created by suturing of the pedicles together.

Fig. 7: The donor site.

Fig. 8: The final graft measuring 10.0 × 7.0 mm.

Fig. 9: The CTG is sutured to stabilize the graft. Emdogain is applied over the CTG.
prior to coronally positioning the DP.

**Fig. 10:** A periosteal releasing incision is made to allow tension-free suturing.

**Fig. 11:** The DP is coronally positioned and sutured.

**Fig. 12:** The maxillary left palate at 12 days post-op.

**Fig. 13:** 12-day post-op of #23.

**Fig. 14:** 3-month post-op. 100% root coverage has been achieved with 0.5 mm probing depth on the mid-buccal of #23.
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CASE 3
DESCRIPTION

A 58-year-old, non-smoking male presented with chief complaint of recession and root sensitivity of tooth #6. At presentation, #6 showed 4.0 mm of facial attachment loss. The Double Pedicle Connective Tissue (DPCTG) technique was used due to the wide interproximal papillae present.

Thorough root debridement and flattening of the root surface was completed and followed by Straumann® PrefGel® (2 minutes) to prepare the root for Straumann Emdogain™. The root was thoroughly rinsed and air dried prior to Straumann Emdogain application. Incisions were made at the level of the CEJ to create a mesial and distal pedicle followed by vertical releasing incisions and partial thickness dissection. The individual pedicles were created and then sutured together as a double pedicle. Emdogain was reapplied onto the root surface and into the vestibular area prior to placement of the CT graft.

The CT graft was harvested from the UR palate (premolar area) and sutured in place by 5-0 plain gut to the level of the CEJ. A periosteal releasing incision was made to coronally position the pedicle for tension-free suturing over the CT graft. The pedicle is intentionally positioned slightly coronal to the CEJ.

At the 5-month visit, tooth #6 showed excellent color blend and soft tissue healing. Probing depths were < 1.0 mm on the labial aspect with no bleeding upon probing and no sensitivity. 100% root coverage was achieved.
Fig. 1: Presentation of #6 Miller Class I recession defect.

Fig. 2: Prepared root surface.

Fig. 3: Emdogain™ is immediately added onto the root surface judiciously.

Fig. 4: Incision design for creating a double pedicle.

Fig. 5: The joining of the 2 papillae has been accomplished with sutures of 5-0 plain gut with a very fine P-2 needle.

Fig. 6: Emdogain being reapplied onto the root surface.

Fig. 7: The palatal CT graft has been harvested from the UR palate and sutured in place by 5-0 plain gut to the level of the CEJ. The sutured double pedicle is sitting passively apical to the CT graft.

Fig. 8: The double pedicle graft has been coronally positioned after a periosteal vestibular releasing incision.

Fig. 9: UR palatal donor site in the bicuspid region lingual to #4 and 5.
Fig. 10: 2-week post-op of the UR palatal donor site.

Fig. 11: 2-week post-op of #6.

Fig. 12: 5-month post-op visit; #6 showing excellent color blend and soft tissue healing.
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CASE 4
DESCRIPTION

A 39-year-old, non-smoking female with no systemic disease presented with a chief complaint of “I want to improve my smile”. Upon clinical examination, probing depths ranged from 2.0 – 3.0 mm with minimal bleeding found upon probing. 2.0 – 5.0 mm gingival recessions were found on most of her maxillary and mandibular teeth. The patient admitted past aggressive brushing and reported recessions having been present for over ten years. She was using de-sensitizing toothpaste and only minor cold sensitivity was reported. She learned to control her smile to hide gingival recessions and exposed roots.

Diagnosis was made as Miller Class I-II gingival recessions with lack of keratinized tissue. Etiologies included thin periodontal biotype as well as trauma from aggressive brushing. Oral hygiene instructions were given and she was instructed to refrain from using hard bristle toothbrushes and avoid excessive brushing pressure. The treatment plan included connective tissue graft with use of Straumann® Emdogain™. Due to limitation of the donor tissue, surgery was planned separately for maxilla and mandible.

The tunneling technique was used in the maxilla, whereas a combination of tunneling and flap was used for the mandible to minimize trauma to the thin tissue. The patient was instructed to use antibiotic mouthwash for the first two weeks and all sutures were removed at two weeks. Healing was uneventful. The patient was instructed to use an extra soft toothbrush for the next two weeks and then to resume normal oral hygiene.
Fig. 1: Initial presentation (frontal view).

Fig. 2: Initial presentation (upper left).

Fig. 3: Initial presentation (upper right).

Fig. 4: Initial presentation (lower left).

Fig. 5: Initial presentation (lower right).

Fig. 6: Situation immediately after maxillary surgery, in which tunneling was used and part of graft was left exposed to increase keratinized tissue.

Fig. 7: Situation immediately after maxillary surgery (upper left).

Fig. 8: Situation immediately after maxillary surgery (upper right).

Fig. 9: Eight weeks after maxillary surgery.

Fig. 10: Mandibular surgery. A combination of tunneling and flap approach was used due to thin periodontal tissue.

Fig. 11: Six months post-op in maxilla, three months post-op in mandible.

Fig. 12: Six months post-op in maxilla (upper left).
Fig. 13: Six months post-op in maxilla (upper right).

Fig. 14: Six months post-op in maxilla (anterior).

Fig. 15: Six months post-op.

Fig. 16: Final documentation. 18 months post-op in maxilla, 15 months post-op in mandible.
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CASE 5
DESCRIPTION

A 32-year-old female presented for treatment of recession and disharmony of the gingival zeniths which she noted in her smile. The patient’s general medical health was non-contributory to the case.

Sulcular incisions traversed the papillae 2.0 – 4.0 mm apical to the interproximal heights of the papillae. Vertical releasing incisions were performed from the distal aspect of the right central incisor tooth (#8) through the distal aspect of the left canine tooth (#11). Once a full/partial thickness flap was reflected, the remaining papillae were de-epithelialized to allow a bleeding bed for the flap to be positioned at closure.

Enameloplasty was provided at the CEJ level for the left lateral incisor tooth (#10) with the aim of creating a more coronal CEJ to improve the harmony of the uneven gingival zenith relationship. This would allow for positioning of the gingival margin for the left lateral incisor at a more coronal level than the adjacent central incisor and canine teeth. (The patient declined similar treatment for the contra-lateral right lateral tooth (#7).)

The surgical site was isolated and treatment continued with an application of Straumann® PrefGel® (EDTA 24%) for two minutes, followed by a saline rinse, and then application of Straumann Emdogain™. A periosteal release enabled the flap to be advanced coronally into position with sutures. Appropriate post-operative instructions were provided to the patient.

During the patient’s six-month post-operative visit, the blended gingival appearance appeared stable and the patient was extremely satisfied with the esthetic result.
Fig. 1: Maxillary anterior before surgery.

Fig. 2: Left maxillary anterior before surgery.

Fig. 3: Situation of patient smile before surgery.

Fig. 4: Maxillary anterior before surgery.

Fig. 5: Post-surgical view of maxillary anterior.

Fig. 6: Post-surgical view of left maxillary anterior.

Fig. 7: Situation 2 weeks post-op.

Fig. 8: Situation 2 weeks post-op (close-up).

Fig. 9: Situation 2 weeks post-op.

Fig. 10: Patient smile 2 weeks post-op.

Fig. 11: Situation 6 months post-op (upper front).

Fig. 12: Situation 6 months post-op (upper right).
DR. MARK I. GUTT, DMD

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CASE 6
DESCRIPTION

A 24-year-old Caucasian female was referred for treatment of gingival recession. Clinical evaluation revealed a medium lip line and facial gingival recession of 3.0 mm, 2.0 mm, and 1.0 mm on teeth #8, #9, and #10, respectively (Fig. 1 and 2). The gingival biotype was thin and scalloped with a triangular tooth presentation. There was a “black triangle” between #9 and #10 (Fig. 1). The etiology of the recession was difficult to ascertain.

A treatment plan was developed that consisted of a coronally advanced flap using a modified tunnel technique with an application of Straumann® Emdogain™. After buccal infiltration with 2% lidocaine (1:100,000 epi), a split thickness buccal mucoperiosteal flap was elevated following intrasulcular incisions from teeth #7 through #11 using a tunneling dissection to elevate but not separate the papillae (Fig. 3 and 4). The teeth were scaled and root planed followed by application of Straumann PrefGel® (Fig. 5 and 6). The roots were lavaged with saline and Emdogain applied to the root surfaces of teeth #8, #9 and #10 (Fig. 7). The buccal flap was then coronally advanced and adapted to the CEJs and sutured with 6-0 Prolene® in an internal vertical mattress fashion (Fig. 8).

Post-op instruction was provided. The patient was seen after 2 weeks for suture removal and has been evaluated for 7 months. The 7-month evaluation revealed complete root coverage and elimination of the “black triangle” with esthetically pleasing gingival and papillary appearance (Fig. 9).
**FIGURES**

**Fig. 1:** Initial presentation indicating altered papillary architecture (#9 and #10) and gingival recession (#8, #9, #10).

**Fig. 2:** Initial presentation indicating degree of gingival recession.

**Fig. 3:** Intrasulcular incision for flap elevation.

**Fig. 4:** Tunneling procedure performed to elevate but retain papillae.

**Fig. 5:** Mobility of flap after tunneling procedure.

**Fig. 6:** Application of PrefGel® to the affected teeth.

**Fig. 7:** Application of Emdogain™.

**Fig. 8:** Sutured coronally advanced flap.

**Fig. 9:** Healing at 7 months.
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CASE 7
DESCRIPTION

A 22-year-old, healthy, non-smoking female presented with 3.0 mm buccal recessions on the upper canines. There was also a thin attached gingiva with marked extension through the labial frenula. The periodontal tissue was healthy and oral hygiene was well-controlled.

The left upper canine was treated with a coronally advanced flap with Straumann® Emdogain™ plus subepithelial connective tissue. First, Emdogain was applied to the root surface followed by the connective tissue graft. The last layer was the remaining Emdogain to improve wound healing. Successful root coverage was the result of the combination of the regenerative potential of Emdogain, an improvement in wound healing and the gain of attached gingiva with a subepithelial connective graft.
Fig. 1: The upper left and right canine with 3.0 mm recessions.

Fig. 2: The left side. The canine with a 3.0 mm recession.

Fig. 3: The left side. The canine with a 3.0 mm recession (close-up).

Fig. 4: A split flap is raised after cleaning the tooth surfaces.

Fig. 5: De-epithelization of the first (7/8) papilla. The next follows.

Fig. 6: Single incision technique on the palatal donor site.

Fig. 7: The connective tissue graft.

Fig. 8: The SBT is placed and fixed after conditioning and application of Emdogain™.

Fig. 9: The remaining Emdogain is applied.

Fig. 10: Wound closure utilizing 6–0 suture material.

Fig. 11: The post-operative situation after 7 days.

Fig. 12: The post-operative situation after 7 days.
**Fig. 13:** The post-operative situation after 11 days.

**Fig. 14:** The post-operative situation after 20 days.

**Fig. 15:** The post-operative situation after 2 months.

**Fig. 16:** The recession is completely covered and there is a wide zone of keratinized gingiva.
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CASE 8
DESCRIPTION

A 51-year-old female was referred for the placement of 3 implant fixtures for a fixed partial denture on the third sextant. She complained about general hypersensitivity and about her smile, particularly her long teeth. The goal of the treatment was to reduce the length of the teeth by using a tunnel connective tissue graft, including the application of Straumann® Emdogain™ on the exposed root surfaces and the placement of three endo-osseous root form dental implants on #12, #13 and #14 in one sitting.

A tunnel connective tissue graft for the root coverage of multiple adjacent recessions was performed. A partial thickness bilaminar bed was created by intrasulcular incisions with a sclerotome micro-knife on teeth #6, #7, #8, #9, #10 and #11. Enough relaxation of the tissue was achieved that would allow enough space for both the introduction of the harvested palatal tissue as well as the coronal advancement of the supra laminar flap upon suturing. Emdogain proteins were utilized to condition the denuded roots as recommended by manufacturer.

Two pulling sutures were used from the mesial and distal aspects of the created bilaminar tunnel in order to introduce the graft through the largest recession. Conventional post-op care was prescribed. High patient satisfaction has been reported so far, both from an esthetic and functional (total reduction of hypersensitivity) point of view.
Fig. 1: Pre-op view: large multiple adjacent recessions on anterior maxillary sextant, Miller Class III, destruction of natural CEJ and tooth extrusion on #10 and #11. Low predictability.

Fig. 2: A large connective tissue graft is obtained from the palate.

Fig. 3: After preparation of a large bilaminar tunnel from #6 through #11, Emdogain™ is applied to the denuded root surface according to the manufacturer’s protocol.

Fig. 4: The graft is positioned in between the bilaminar bed by two traction sutures.

Fig. 5: Healing at one week showing almost 100% coverage in both central incisors, the most demanding recessions.

Fig. 6: Healing at three months, frontal view. Restoration of the lost level of CEJ. Residual recession is expected in advanced Miller Class II gingival recession points.

Fig. 7: Right lateral view at three months of healing.

Fig. 8: Left lateral view at three months of healing.
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CASE 9

DESCRIPTION

A 27-year-old Caucasian female presented at the dental clinic for sensitive mandibular incisors. She had been smoking for 7 years and had oral piercings, a tongue ring and two lip rings (labrets), which had contributed to the soft and hard tissue damage to teeth #24 and #25. The clinical attachment loss of the mid-facial surfaces of #24 and #25 was 9.0 mm and 11.0 mm, respectively, with recession of 6.0 mm and 8.0 mm, respectively, and a class I mobility of both teeth. Non-surgical therapy had a minimal effect on this area.

A surgical treatment plan was developed to include a connective tissue graft with the addition of Straumann® Emdogain™ for a better potential regenerative outcome on both #24 and #25. The initial healing at two weeks was less than adequate with the suspicion of continued smoking and less than adequate oral hygiene. However, the tissue started showing continued improvement at the six-week follow-up, and at eleven months the area had improved dramatically with minimal probing depths (< 3.0 mm) and complete coverage of #25 as well as a 2.0 mm residual defect of #24.

The impressive feature of this outcome was that regardless of the risk factor of continued smoking, as confirmed by the patient, and less than adequate hygiene, the tissues responded and improved to a healthy state with much improved esthetics.
Figures

Fig. 1: Depiction of initial situation.

Fig. 2: Pre-op radiograph of teeth #24 and #25.

Fig. 3: Initial flap.

Fig. 4: Post-debridement.

Fig. 5: Application of PrefGel® (EDTA).

Fig. 6: Application of Emdogain™.

Fig. 7: CT of graft suture.

Fig. 8: Depiction of sutured flap.

Fig. 9: Situation at two-week follow-up.

Fig. 10: Situation at six-week follow-up.

Fig. 11: Final situation at eleven-month follow-up.
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CASE 10
DESCRIPTION

A referred 23-year-old female patient was presenting with multiple gingival recessions (teeth #8 to #3). The prominent canine showed a Miller Class III recession, the other teeth presented with Miller Class I recessions. The treatment procedure began with a thorough cleaning and scaling of the exposed root surfaces with hand and sonic instruments and was followed by a split thickness flap preparation of a Zucchelli-style flap (without vertical releasing incisions). A dissection into the vestibular mucosa allowed for further mobilization.

Straumann® PrefGel® (EDTA) was applied for two minutes on the root surface. Subsequently, the surgical area was rinsed with sterile saline and Straumann® Emdogain™ was applied to the root surfaces. Connective tissue graft (CTG) was harvested from the palate with the single incision technique. The graft was then split. The CTG was fixed on the root surface and the flap coronally positioned and fixed with sling sutures.

Mechanical tooth cleaning in the surgical area was avoided during the first 4 weeks and a chlorhexidine solution was prescribed. Sutures were removed 10 days after surgery.
**FIGURES**

**Fig. 1:** Multiple recessions of the right upper jaw. The buccally positioned canine shows a Miller Class III recession.

**Fig. 2:** Outline of a Zucchelli-style flap. A split thickness preparation is chosen to facilitate graft survival.

**Fig. 3:** De-epithelization of the papilla areas.

**Fig. 4:** Finished flap preparation. No vertical releasing incisions are necessary for coronal positioning.

**Fig. 5:** Application of PrefGel® for two minutes on the root surfaces.

**Fig. 6:** Application of Emdogain™.

**Fig. 7:** Preparation of the donor site with the single incision technique.

**Fig. 8:** Harvesting of the connective tissue graft.

**Fig. 9:** Harvesting of the connective tissue graft.

**Fig. 10:** The graft is bisected to allow covering of the complete area.

**Fig. 11:** The graft is bisected to allow covering of the complete area.
Fig. 12: The positioned connective tissue graft.

Fig. 13: The flap is positioned coronally to the cemento-enamel-junction, completely covering the graft.

Fig. 14: Situation at 10-day post-op at the time of suture removal.

Fig. 15: Situation at 10-day post-op at the time of suture removal (from the palate).

Fig. 16: The healed situation after 3 months.
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A 45-year-old female presented with localized recession areas in the maxillary esthetic zone at teeth #8 and #9. These recession areas ranged from 4.0 – 5.0 mm. The patient’s chief concern was that these areas were sensitive and esthetically compromised due to the root exposure.

The treatment plan recommendation was to treat these areas for recession coverage using a combination of a coronal rotational advanced flap technique and with Straumann® Emdogain™, which was applied to the root surfaces of teeth #8 and #9.
**Figures**

**Fig. 1:** Pre-surgical view of teeth #8 and #9.

**Fig. 2:** Depiction of initial surgical design and incision.

**Fig. 3:** Flap elevation and application of PrefGel® for root preparation.

**Fig. 4:** Root debridement and irrigation.

**Fig. 5:** Application of Emdogain™.

**Fig. 6:** Flap closure and stabilization.

**Fig. 7:** Post-surgical view at 3 weeks.

**Fig. 8:** Post-surgical view at 1 year.
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