

**Park S and Wang H. Clinical significance of incision location on guided bone regeneration: Human Study. J Periodontol 2007;78:47-51.**

**Purpose:** to investigate the effect of the location of the initial crestal incision and subsequent flap survival at an early flap healing phase. It also proposed a clinical guideline for locating the avascular zone to assist in improved soft tissue wound healing during a GBR procedure.

**Materials and Methods:** twenty nine implant-associated dehiscence defects in 25 patients were augmented using particulate mineralized human allograft (Puros). Ten sites received a collagen bioabsorbable membrane, 10 sites received acellular dermal matrix, and nine sites were treated with bone graft alone. All implants achieved primary stability and passive flap tension at the time of flap closure. Incision location was measured as the distance from the initial incision to the mucogingival junction. The same measurements were made at 2 weeks and one month to represent the length of the flap that survived, the length of the flap that survived at 2 weeks was compared to the mean width of buccal keratinized gingival of adjacent teeth. Other clinical parameters recorded included incidence of early membrane exposure and gingival thickness at midcrest and 6mm buccal and lingual to the midcrest at baseline. An independent samples t test was performed for intragroup and intergroup comparisons between the exposed and nonexposed groups.

**Results and Conclusion:** The mean keratinized tissue width of the buccal flap at 2 weeks in bovine collagen membrane and acellular dermal matrix groups was  $3.3 \pm 1.1$ mm and  $3.5 \pm 1.5$ mm respectively. The difference between the mean KG width of the survived buccal flap at 2 weeks and that of the adjacent teeth as represented by "vascular compensation" was  $0.1 \pm 0.6$ mm and  $0.4 \pm 0.9$ mm for the two membrane groups. Conversely, the control group had a mean vascular compensation of  $1.6 \pm 1.1$  mm. gingival thickness was compared between patients with early membrane/implant exposure and non exposure. 10 cases of early membrane exposure occurs at 2 weeks, whereas 19 patients showed complete closure at 2 weeks. when comparing the gingival thickness at exposed and nonexposed sites, only the palatal/lingual thickness showed a significant difference. The mean palatal/lingual gingival thickness of nonexposed cases was 3.0mm whereas that of exposed cases was 1.1 mm.

Within the limits of the study, it was concluded that the location of the crestal incision might be a significant factor in reducing the incidence of membrane exposure by minimizing flap necrosis. The mean KG width of adjacent teeth may be used as a guide to determine the initial incision location. However, this effect may be less significant in palatal/lingual gingival  $> 3.0$ mm.

**Sculean A, Schwartz F, Miliauskaite A et al. Treatment of intrabony defects with an enamel matrix protein derivative or bioabsorbable membrane: An 8-year follow-up split-mouth study. J Periodontol 2006; 77:1879-86. (64 refs.)**

**Purpose:** To present the clinical results obtained at 8 years following treatment of intrabony defects with EMD or GTR.

**Materials and Methods:** A total of 16 patients (6 females and 10 males) were included in the study. Only 10 patients (6 females and 4 males) with a mean age of 46 + 4.5 years (range, 38 to 55 years) completed the 8 year evaluation. The criteria for the selection of the patients were as follows: 1) in the same jaw of one pair of contralateral intrabony defects similar in form and size as observed on radiographs: the intrabony defects presented a depth >6mm when measured; 2) no systemic diseases; 3) no use of antibiotics for the 6 months prior to treatment; 4) no treatment of periodontitis for the last 2 years; and 5) a good level of oral hygiene. Three months prior to surgery, each patient was given thorough OHI and full-mouth supra- and subgingival SRP. One week prior to and after 1 and 8 years following therapy, the clinical parameters such as PD, GR (recession), CAL, BOP, PI and GI were measured. Upon surgical procedure, following intracrevicular incisions, full-thickness mucoperiosteal flaps were raised. After degranulation, the roots were thoroughly scaled and planed. Subsequently, the defects were randomly assigned to treatment with EMD or GTR. When EMD was used, the root surfaces adjacent to the defects were conditioned for 2 min. with 24% EDTA. After rinsing, EMD was applied on the root surfaces and into the defects. Flaps were repositioned coronally and closed with vertical or horizontal mattress sutures. Following a period of <2 weeks, the contralateral intrabony defects were treated with a bioabsorbable membrane (RESOLUT). At these sites, the root surfaces were scaled and root planed, but no root conditioning with EDTA was performed. All patients received antibiotics for 7 days (Amoxicillin and Metronidazole). Sutures were removed 14 days after the surgery. The postoperative care consisted of 0.2% CHX rinses twice a day for 6 weeks. Recall appointments were scheduled every second week during the first 2 months following the procedure, and the patients were recalled once per month during the first year postoperatively. After the first year and during the rest of the observation period of 8 years, the patients were recalled every 3 or 6 months. The collected clinical parameters were statistically analyzed.

**Findings:** At baseline, there were no statistically significant differences in any of the investigated clinical parameters and in the initial depth of the intrabony component at the surgical procedure. The mean PI did not reveal a statistically significant difference between the two groups at baseline and after 1 and 8 years. A statistically significant difference was observed in both treatment groups when comparing the GI and BOP values at 1 and 8 years to the baseline values. At 1 year, the PD decreased statistically highly significantly in both groups. Between the groups, no statistically significant difference was found. At 8 years, a statistically significant increase in PD was observed in both groups compared to the 1 year values. At 8 years, the PD was still statistically highly significantly improved compared to baseline. At 1 year, the GR increased statistically highly significantly in both groups compared to baseline, but the difference between the groups was not significant. The 8-year GR values improved in both groups compared to the 1 year results, but the difference reached statistical significance only in the GTR group. No statistically significant differences between the two groups were found at 8 years. At 1 and at 8 years, the CAL improved statistically highly significantly in both groups compared to baseline. Within the groups and between the two treatments, no statistically significant differences between the 1- and 8 year results were found.

**Conclusion:** The clinical improvement obtained following treatment with EMD or GTR can be maintained over a period of 8 years.

**Mellonig JT. Histologic and clinical evaluation of an allogenic bone matrix for the treatment of periodontal osseous defects. Int J Periodontics Restorative Dent 2006;26:561-9. (34 refs.)**

**Purpose:** To present a human histologic analysis of the potential of DBM to promote new bone, cementum, and periodontal ligament in periodontal intra-osseous defects.

**Materials and Methods:** Four patients with chronic generalized advanced periodontitis with at least one intra-osseous defect who were scheduled for full-mouth extractions were enrolled in the study. Clinical photographs, radiographs, PD, REC, CAL at the time of surgery and just prior to the en bloc removal procedures at 6 months post-surgically were done. After flap reflection, a notch was placed through the apical extent of calculus into the root surface. DBM was placed into the defect after debridement and flaps were sutured. Doxycycline 100 mg for 10 days was given. Six months post-surgically, the teeth were removed en bloc following a protocol described by Bowers et al. The alveolar ridges were reconstructed using FDBA, DBM, Emdogain and a bioresorbable barrier. The biopsies measured approximately 3x4x7 mm. The teeth were sectioned and prepared for H&E staining.

**Results:** Of the 4 patients one was dropped from the study. Two of them showed reduction in PD and a gain in CAL. Enbloc specimens from these patients showed significant amounts of new bone, cementum and periodontal ligament as well as connective tissue attachment without cementum. The third patient showed gingival recession and a loss of CAL.

Clinical and histologic measurements (in mm) of sites treated with DBM							
Patient	Site	Baseline			Post-treatment (6 mo)		
		PD	REC	CAL	PD	REC	CAL
1	6D	11	1	12	4	4	8
2	29M	7	0	7	3	1	4
3	11D	11	0	11	5	7	12

Summary of clinical and histologic results (in mm)					
Patient	Site	PDR	REC	CAL	Histology
1	6D	7	3	4	REG
2	29M	4	1	3	REG
3	11D	5	7	-1	GM@notch

PRD=probing depth reduction; REG=periodontal regeneration; GM=gingival margin

Summary of histologic results (in mm)					
Patient	Site	NB	NC	PDL	CT
1	6D	2.3	1.3	1.3	3.1
2	29M	3.5	2.9	2.9	0.6
3	11D	0	0	0	0

NB=new bone; NC=new cementum; PDL=new periodontal ligament; CT=new connective tissue attachment.

**Conclusions:** The results of this study demonstrate proof of principle that periodontal regeneration consisting of new bone, cementum and periodontal ligament coronal to a notch placed in a contaminated root surface is possible with a bone replacement graft of DBM.

**AC:** Hard to believe that Mellonig did such a poorly designed study. 3 subjects!!! No control!!! Followed only for 6 months. A lot of problems. Wont recommend reading the article.

**Cortellini P, Tonetti MS. A minimally invasive surgical technique with an enamel matrix derivative in the regenerative treatment of intra-bony defects: a novel approach to limit morbidity. J Clin Periodontol 2007; 34: 87-93. (37 refs.)**

**Purpose:** To describe a novel surgical approach and preliminarily evaluate the clinical performances and the patient perception of the "MIST" (Minimally Invasive Surgical Technique) associated with the application of enamel matrix derivative (EMD) in the treatment of isolated deep intra-bony defects.

**Materials and Methods:** Systemically healthy, non-smoking human subjects with evidence of advanced periodontal disease were screened for the presence of at least one vital tooth with PPD and CAL loss of at least 5 mm associated with an intra-bony defect of at least 2 mm. Thirteen subjects (mean age of 43 years, nine females and 4 males) with 13 intrabony defects were deemed to be eligible for this 1-year clinical study. All subjects underwent phase I therapy and, if necessary, phase II therapy. Baseline clinical measurements were undertaken to assess the full-mouth plaque score (FMPS), full-mouth bleeding score (FMBS), probing pocket depths, and gingival recession. In addition, periapical radiographs of the intrabony defects were obtained prior to the regenerative procedure in order to measure the defect angle. Defects were surgically assessed with an operating microscope and microsurgical instruments. Flaps were conservatively designed, elevated, and reflected by using either the simplified papilla preservation flap (SPPF) or the modified papilla preservation technique (MPPT). The objective of both techniques was to minimize flap mobility and tension, to preserve as much papilla covering the lesion as possible while, at the same time, exposing just 1-2 mm of the defect-associated residual bone defects, to facilitate wound healing, and to minimize surgical trauma. Vertical releasing incisions were avoided as much as possible and only the defect-associated papilla was accessed. Intra-surgery clinical measurements of the defect were collected to characterize the distance between the CEJ and the depth of the bone defect and the total depth of the intra-bony component of the defect (INFRA). The defects were manually debrided and the roots were scaled and root planed. Subsequently, EDTA was applied for 2 minutes, and then dried. Finally, EMD were applied to the root surface. The flaps were then sutured together with an internal mattress suture in order to ensure primary closure and stability. Chair-time of each surgical procedure and patient perception of the MIST/EMD procedure were recorded. At the completion of the surgical procedure, subjects were placed on antibiotics (doxycycline), given specific oral hygiene instructions (0.12% CHX), enrolled in an intensive oral hygiene program (weekly professional cleanings for the first six weeks, and then every 3 months thereafter), and instructed to return in one year for repeat of clinical and radiographic assessment.

**Findings:** Final results at the 1-year termination of the study revealed statistically significant improvements in FMPS (mean baseline= 11% vs. mean 1-year = 6.9%), FMBS (mean baseline= 6.8% vs. mean 1-year= 4.3%), CAL (mean baseline= 8.7 mm vs. 1-year 3.8 mm), and probing pocket depths (mean baseline= 7.7 mm vs. mean 1- year= 2.9 mm). Amazingly, of the thirteen subjects that underwent this procedure, 7 of the cases showed complete resolution of the lesion in terms of CAL gain. The average CAL gain, as a result of the MIST/EMD procedure, was approximately 88.7%. Gingival recession was noted in all patients, but was deemed to be statistically insignificant. No postoperative complications, such as edema, suppuration, pain, or swelling, was reported. Patients had a very positive perception of the surgical procedure to the point that "they could forget having been surgically treated in their mouth" following 1-week postsurgically. Also, the surgical MIST/EMD chair-time could be preformed faster than the average surgical chair-time (55.4 minutes vs. 80 minutes.)

**Conclusion:** Preliminary findings of the MIST/EMD seem to result in superior clinical outcomes. Patients' attitudes with the procedure were reported to be very positive.