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Thema: Klinische Aspekte in der regenerativen Parodontaltherapie

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Literatur:

1. Bosshardt DD. Biological mediators and periodontal regeneration: a review of enamel matrix proteins at the cellular and molecular levels. *J Clin Periodontol* 2008; 35 (Suppl. 8): 87-105.
2. Bowers GM, Chadroff B, Carnevale R, Mellonig J, Corio R, Emerson J, Stevens M, Romberg E. Histologic evaluation of new attachment apparatus formation in humans. Part II. *J Periodontol* 1989; 60: 675-682.
3. Caffesse RG, Mota LF, Quinones CR, Morrison EC. Clinical comparison of resorbable and non-resorbable barriers for guided periodontal tissue regeneration. *J Clin Periodontol* 1997; 24: 747-752.
4. Camelo M, Nevins M, Schenk R, Simion M, Rasperini G, Lynch S, Nevins M. Clinical, radiographic, and histologic evaluation of human periodontal defects treated with Bio-oss[®] and Bio-Gide. *Int J Periodont Rest Dent* 1998; 18: 321-331.
5. Caton JG, Greenstein G. Factors related to periodontal regeneration. *Periodontology* 2000 1993; 1: 9-15.
6. Chambrone L, Sukekava F, Arauj MG, Pustiglioni FE, Chambrone LA, Lima LA. Root-coverage procedures for the treatment of localized recession-type defects: a Cochrane systematic review. *J Periodontol* 2010; 4: 452-478
7. Christgau M, Schmalz G, Reich E, Wenzel A. Clinical and radiographical split-mouth study on resorbable versus non-resorbable GTR-membranes. *J Clin Periodontol* 1995; 22: 306-315.
8. Cortellini P, Pini-Prato G, Tonetti M. Periodontal regeneration of human intrabony defects. V. Effect of oral hygiene on long term stability. *J Clin Periodontol* 1994; 21: 606-610.
9. Cortellini P, Pini-Prato G, Tonetti M. The modified papilla preservation technique. A new surgical approach for interproximal regenerative procedures. *J Periodontol* 1995; 66: 261-266.
10. Cortellini P, Pini-Prato G, Tonetti M. Long-term stability of clinical attachment following guided tissue regeneration and conventional therapy. *J Clin Periodontol* 1995; 23: 106-111.
11. Cortellini P, Pini-Prato GP, Tonetti MS. Periodontal regeneration of human intrabony defects with bioresorbable membranes. A controlled clinical trial. *J Periodontol* 1996; 67: 217-223.
12. Cortellini P, Pini-Prato G, Tonetti MS. The simplified papilla preservation flap. A novel surgical approach for the management of soft tissues in regenerative procedures. *Int J Periodontics Restorative Dent* 1999; 19:589-599.
13. Cortellini P, Tonetti M. Clinical performance of a regenerative strategy for intrabony defects: scientific evidence and clinical experience. *J Periodontol* 2005; 76: 341-350.
14. Dragoo MR, Sullivan HC. A clinical and histological evaluation of autogenous iliac bone grafts in humans. I. Wound healing 2 to 8 months. *J Periodontol* 1973; 45: 599-613.

15. Eickholz P. Glossar der Grundbegriffe für die Praxis: Chirurgische Parodontitistherapie: 3. Papillenerhaltungslappen: klassisch, modifiziert, vereinfacht. *Parodontologie* 2003; 14: 411-418.
16. Eickholz P, Hörr T, Klein F, Hassfeld S, Kim T-S. Radiographic parameters for prognosis of periodontal healing of intrabony defects: Two different definitions of defect depth. *J Periodontol* 2004; 75: 399-407.
17. Eickholz P, Lenhard M, Benn DK, Staehle HJ. Periodontal surgery of vertical bony defects with or without synthetic bioabsorbable barriers. 12-month results. *J Periodontol* 1998; 69: 1210-1217.
18. Froum S, Stahl SS. Human intraosseous healing response to the placement of tricalcium phosphate ceramic implants. II. 13 to 18 months. *J Periodontol* 1987; 58: 103-109.
19. Froum S, Lemler J, Horowitz R, Davidson B. The use of enamel matrix derivative in the treatment of periodontal osseous defects: A clinical decision tree based on biologic principles of regeneration. *Int J Periodontics Restorative Dent* 2001; 21: 437-449.
20. Gottlow J, Nyman S, Lindhe J, Karring T, Wennström J. New attachment formation in the human periodontium by guided tissue regeneration. Case reports. *J Clin Periodontol* 1986; 13: 604-616.
21. Heijl L. Periodontal regeneration with enamel matrix derivative in one human experimental defect. A case report. *J Clin Periodontol* 1997; 24: 693-696.
22. Iorio Siciliano V, Andreuccetti G, Iorio Siciliano A, Blasi A, Sculean A, Salvi GE. Clinical outcomes after treatment of non-contained intrabony defects with enamel matrix derivative or guided tissue regeneration: a 12-months randomized controlled clinical trial. *J Periodontol* 2011; 82: 62-71.
23. Jepsen S, Topoll H, Rengers H, Heinz B, Teich M, Hoffmann T, Al-Machot E, Meyle J, Jervøe-Storm PM. Clinical outcomes after treatment of intra-bony defects with an EMD/synthetic bone graft or EMD alone: a multicentre randomized-controlled clinical trial. *J Clin Periodontol* 2008; 35: 420-428.
24. Karring T, Nyman S, Gottlow J, Laurell L. Development of the biological concept of guided tissue regeneration - animal and human studies. *Periodontology* 2000 1993; 1: 26-35.
25. Klein F, Kim T-S, Hassfeld S, Staehle HJ, Reitmeir P, Holle R. Radiographic defect depth and width for prognosis and description of periodontal healing of intrabony defects. *J Periodontol* 2001; 72: 1639-1646.
26. Lekovic V, Camargo PM, Weinlaender M, Nedic M, Aleksic Z, Kenney EB. A comparison between enamel matrix proteins used alone or in combination with bovine porous bone mineral in the treatment of intrabony periodontal defects in humans. *J Periodontol* 2000; 71: 1110-1116.
27. Listgarten MA, Rosenberg MM. Histological study of repair following new attachment procedures in human periodontal lesions. *J Periodontol* 1979; 50: 333-344.
28. Mellonig JT. Enamel matrix derivative for periodontal reconstructive surgery: technique and clinical and histologic case report. *Int J Periodontics Restorative Dent* 1999; 19: 9-19.
29. Murphy K. Interproximal tissue maintenance in GTR procedures. A new surgical technique and 1-year reentry results. *Int J Periodontics Restorative Dent* 1996; 16: 463-477.
30. Nevins ML, Camelo M, Nevins M, King CJ, Oringer RJ, Schenk RK, Fiorellini JP. Human histologic evaluation of bioactive ceramic in the treatment of periodontal defects. *Int J Periodont Rest Dent* 2000; 20: 458-467.
31. Nikolopoulos S, Petinaki E, Castanas E. Immunologic effects of Emdogain in humans:

- one-year results. *Int J Periodont Rest Dent* 2002; 22: 269-277.
32. Okuda K, Momose M, Miyazaki A, Murata M, Yokohama S, Yonezawa Y, Wolff LF, Yoshie H. Enamel matrix derivative in the treatment of human intrabony osseous defects. *J Periodontol* 2000; 71: 1821-1828.
 33. Paolantonio M. Combined regenerative technique in human intrabony defects by collagen membranes and anorganic bovine bone. A controlled clinical study. *J Periodontology* 2002; 73: 158-166.
 34. Petinaki E, Nikolopoulos S, Castanas. Low stimulation of peripheral lymphocytes, following in vitro application of Emdogain. *J Clin Periodontol* 1998; 25: 715-720.
 35. Polimeni G, Koo KT, Qahash M, Xiropaidis AV, Albandar JM, Wikesjö UME. Prognostic factors for alveolar regeneration: effect of a space-providing biomaterial on guided tissue regeneration. *J Clin Periodontol* 2004; 31: 725-729.
 36. Rasperini G, Silvestri M, Ricci G. Long-term clinical observation of treatment of intrabony defects with enamel matrix derivative (Emdogain): surgical reentry. *Int J Periodontics Restorative Dent* 2005; 25: 121-127.
 37. Saffar JL, Colombier ML, Detienville R. Bone formation in tricalcium phosphate-filled periodontal intrabony lesions. Histologic observations in humans. *J Periodontol* 1990; 61: 209-216.
 38. Sanz M, Tonetti MS, Zabalegui I, Sicilia A, Blanco J, Rebelo H, Rasperini G, Merli M, Cortellini P and Sauvan JE. Treatment of intrabony defects with enamel matrix proteins or barrier membranes: results from a multicenter practice-based clinical trial. *J Periodontol* 2004; 75: 726-733.
 39. Sculean A, Chiantella GC, Windisch P, Donos N. Clinical and histologic evaluation of treatment of intrabony defects with an enamel matrix protein derivative (Emdogain®). *Int J Periodont Rest Dent* 2000; 20: 375-381.
 40. Sculean A, Donos N, Brex M, Reich E, Karring T. Treatment of intrabony defects with enamel matrix proteins and guided tissue regeneration. An experimental study in monkeys. *J Clin Periodontol* 2000; 27: 466-472.
 41. Sculean A, Donos N, Windisch P, Gera I, Brex M, Reich E, Karring T. Healing of human intrabony defects following treatment with enamel matrix proteins or guided tissue regeneration. *J Periodont Res* 1999; 34: 310-322.
 42. Sculean A, Kiss A, Miliauskaite A, Schwarz F, Arweiler NB, Hannig M. Ten-year results following treatment of intra-bony defects with enamel matrix proteins and guided tissue regeneration. *J Clin Periodontol* 2008; 35: 817-824.
 43. Sculean A, Nikolidakis D, Schwarz F. Regeneration of periodontal tissues: combination of barrier membranes and grafting materials – biological foundation and preclinical evidence: a systematic review. *J Clin Periodontol* 2008; 35 (Suppl. 8): 106-116.
 44. Sculean A, Windisch P, Keglevich T, Chiantella GC, Gera I, Donos N. Clinical and histologic evaluation of human intrabony defects treated with an enamel matrix protein derivative combined with a bovine-derived xenograft. *Int J Periodont Rest Dent* 2003; 23: 47-55.
 45. Sculean A, Windisch P, Keglevich T, Gera I. Clinical and histological evaluation of an enamel matrix protein derivative combined with a bioactive glass for the treatment of intrabony periodontal defects in humans. *Int J Periodont Rest Dent* 2005; 25: 139-47.
 46. Sculean A, Donos N, Schwarz F, Becker J, Brex M, Arweiler NB. Five year results following treatment of intrabony defects with enamel matrix proteins and guided tissue regeneration. *J Clin Periodontol* 2004; 31: 545-549.
 47. Sculean A, Schwarz F, Miliauskaite A, Kiss A, Arweiler NB, Becker J, Brex M. Treatment of intrabony defects with an enamel matrix protein derivative or

- bioresorbable membrane: an 8-year follow-up split-mouth study. *J Periodontol* 2006; 77: 1879-1886.
48. Sculean A, Windisch P, Chiantella GC, Donos N, Brex M, Reich E. Treatment of intrabony defects with enamel matrix proteins and guided tissue regeneration. A prospective controlled clinical study. *J Clin Periodontol* 2001; 28: 397-403.
 49. Sculean A, Chiantella GC, Schwarz F, Kiss A, Arweiler NB, Becker J. Nine year results following treatment of intrabony periodontal defects with an enamel matrix protein derivative. *Int J Periodontics Restorative Dent* 2005; 27: 221-229.
 50. Sculean A, Blaes A, Arweiler N, Reich E, Donos N, Brex M. The effect of postsurgical antibiotics on the healing of intrabony defects following treatment with enamel matrix proteines. *J Periodontol*. 2001 Feb; 72(2):190-5.
 51. Selvig K, Kersten B, Wikesjö U. Surgical treatment of intrabony periodontal defects using expanded polytetrafluoroethylene barrier membranes: influence of defect configuration on healing response. *J Periodontol* 1993; 63: 974-978.
 52. Silvestri M, Ricci G, Rasperini G, Sartori S, Cattaneo V. Comparison of treatments of intrabony defects with enamel matrix derivative, guided tissue regeneration with a nonresorbable membrane and Widman modified flap. A pilot study. *J Clin Periodontol* 2000; 27: 603-610.
 53. Silvestri M, Sartori S, Rasperini G, Ricci G, Rota C, Cattaneo V. Comparison of intrabony defects treated with enamel matrix derivative versus guided tissue regeneration with a nonresorbable membrane. *J Clin Periodontol* 2003; 30: 386-393.
 54. Stahl S, Froum S, Kushner L. Healing responses of human teeth following the use of debridement, grafting and citric acid root conditioning. II. Clinical and histologic observations: One year post-surgery. *J Periodontol* 1983; 54: 325-338.
 55. Stahl SS, Froum S. Histologic and clinical responses to porous hydroxylapatite implants in human periodontal defects. Three to twelve months postimplantation. *J Periodontol* 1987; 58: 689-695.
 56. Stahl S, Froum S, Tarnow D. Human clinical and histologic responses to the placement of HTR polymer particles in 11 intrabony lesion. *J Periodontol* 1990; 61: 269-274.
 57. Takei HH, Han TJ, Carranza FAJr, Kenney EB, Lekovic V Flap technique for periodontal bone implants. Papilla preservation technique. *J Periodontol* 1985; 56: 204-210.
 58. Tonetti MS, Pini-Prato G, Cortellini P. Periodontal regeneration of human intrabony defects. IV. Determinants of healing response. *J Periodontol* 1993; 64: 934-940.
 59. Trombelli L, Heitz-Mayfield LJA, Needleman I, Moles D, Scabbia A. A systematic review of graft materials and biological agents for periodontal intraosseous defects. *J Clin Periodontol* 2002; 29 (Suppl. 3): 117-135.
 60. Tsitoura E, Tucker R, Suvan J, Laurell L, Cortellini P, Tonetti M. Baseline radiographic defect angle of the intrabony defect as a prognostic indicator in regenerative periodontal surgery with enamel matrix derivative. *J Clin Periodontol* 2004; 31: 643-647.
 61. Wikesjö UME, Selvig KA. Periodontal wound healing and regeneration. *Periodontology* 2000 1999; 19: 21-39.
 62. Velasquez-Plata D, Scheyer ET, Mellonig JT. Clinical comparison of an enamel matrix derivative used alone or in combination with a bovine-derived xenograft for the treatment of periodontal osseous defects in humans. *J Periodontol* 2002; 73: 433-440.
 63. Yukna R A, Mellonig J. Histologic evaluation of periodontal healing in humans following regenerative therapy with enamel matrix derivative. A 10-case series. *J Periodontol* 2000; 71: 752-759.

64. Zetterström O, Andersson C, Eriksson L, Frederiksson A, Friskopp J, Heden G, Jansson B, Lundgren T, Nilveus R, Olsson A, Renvert S, Salonen L, Sjöström L, Winell A, Östgren A, Gestrelus S. Clinical safety of enamel matrix derivative (Emdogain[®]) in the treatment of periodontal defects. J Clin Periodontol 1997; 24: 697-704.
65. Zucchelli G, Amore C, Montebugnoli L, De Sanctis M. Enamel matrix proteins and bovine porous mineral in the treatment of intrabony defects: a comparative controlled clinical trial. J Periodontol 2003; 74: 1725-1735.
66. Zucchelli G, Bernardi F, Montebugnoli L, De Sanctis. Enamel matrix proteins and guided tissue regeneration with titanium-reinforced expanded polytetrafluoroethylene membranes in the treatment of intrabony defects: a comparative controlled clinical trial. J Periodontol 2002; 73: 3-12.

In Abb. 2 ist ein klinisches Beispiel zur Anwendung von SMPs (Emdogain[®], Straumann, Basel) dargestellt.