

## **REFERENCES**

1. Ghaziani P, Aghasizadeh N, Sheikh-Nezami M. Endodontic treatment with MTA apical plugs: a case report. *J Oral Sci* 2007; 49: 325-9.
2. Dominguez Reyes A, Munoz Munoz L, Aznar Martin T. Study of calcium hydroxide apexification in 26 young permanent incisors. *Dent Traumatol* 2005; 21: 141-5.
3. Parashos P. Apexification: case report. *Aust Dent J* 1997; 42(1): 43-6.
4. Shabahang S, Torabinejad M, Boyne PP, Abedi H, McMillan P. A comparative study of root-end induction using osteogenic protein-1, calcium hydroxide, and mineral trioxide aggregate in dogs. *J Endod* 1999; 25: 1-5.
5. Bose R, Nummikoski P, Hargreaves K. A retrospective evaluation of radiographic outcomes in immature teeth with necrotic root canal systems treated with regenerative endodontic procedures. *J Endod* 2009; 35(10): 1343-9.
6. Jeeruphan T, Jantarat J, Yaniset K, Suwannapan L, Khewsawai P, Hargreaves KM. Mahidol study 1: comparison of radiographic and survival outcomes of immature teeth treated with either regenerative endodontic or apexification methods: a retrospective study. *J Endod* 2012; 38(10): 1330-6.
7. Doyon GE, Dumsha T, von Fraunhofer JA. Fracture resistance of human root dentin exposed to intracanal calcium hydroxide. *J Endod* 2005; 31(12): 895-7.

8. Andreasen JO, Farik B, Munksgaard EC. Long-term calcium hydroxide as a root canal dressing may increase risk of root fracture. *Dent Traumatol* 2002; 18(3): 134-7.
9. Banchs F, Trope M. Revascularization of immature permanent teeth with apical periodontitis: new treatment protocol?. *J Endod* 2004; 30(4): 196-200.
10. Iwaya SI, Ikawa M, Kubota M. Revascularization of an immature permanent tooth with apical periodontitis and sinus tract. *Dent Traumatol* 2001; 17(4): 185-7.
11. Chueh LH, Huang GT. Immature teeth with periradicular periodontitis or abscess undergoing apexogenesis: a paradigm shift. *J Endod* 2006; 32: 1205-13.
12. Shah N, Logani A, Bhaskar U, Aggarwal V. Efficacy of revascularization to induce apexification/apexogenesis in infected, nonvital, immature teeth: a pilot clinical study. *J Endod* 2008; 34: 919-25.
13. Cotti E, Mereu M, Lusso D. Regenerative treatment of an immature, traumatized tooth with apical periodontitis: report of a case. *J Endod* 2008; 34: 611-6.
14. Cehreli ZC, Isbitiren B, Sara S, Erbas G. Regenerative endodontic treatment (revascularization) of immature necrotic molars medicated with calcium hydroxide: a case series. *J Endod* 2011; 37: 1327-30.
15. Nosrat A, Seifi A, Asgary S. Regenerative endodontic treatment (revascularization) for necrotic immature permanent molars: a review and report of two cases with a new biomaterial. *J Endod* 2011; 37: 562-7.

16. Ostby BN. The role of the blood clot in endodontic therapy. An experimental histologic study. *Acta Odontol Scand* 1961; 19: 324-53.
17. Wang X, Thibodeau B, Trope M, Lin LM, Huang GT. Histologic characterization of regenerated tissues in canal space after the revitalization/revascularization procedure of immature dog teeth with apical periodontitis. *J Endod* 2010; 36: 56-63.
18. Thibodeau B, Teixeira F, Yamauchi M, Caplan DJ, Trope M. Pulp revascularization of immature dog teeth with apical periodontitis. *J Endod* 2007; 33: 680-9.
19. Torabinejad M, Faras H. A clinical and histological report of a tooth with an open apex treated with regenerative endodontics using platelet-rich plasma. *J Endod* 2012; 38: 864-8.
20. Shimizu E, Jong G, Partridge N, Rosenberg PA, Lin LM. Histologic observation of a human immature permanent tooth with irreversible pulpitis after revascularization/regeneration procedure. *J Endod* 2012; 38: 1293-7.
21. Martin G, Ricucci D, Gibbs JL, Lin LM. Histological findings of revascularized/revitalized immature permanent molar with apical periodontitis using platelet-rich plasma. *J Endod* 2013; 39(1): 138-44.
22. da Silva LA, Nelson-Filho P, da Silva RA, Flores DS, Heilborn C, Johnson JD, et al. Revascularization and periapical repair after endodontic treatment using apical negative pressure irrigation versus conventional irrigation plus triantibiotic intracanal dressing in dogs' teeth with apical periodontitis. *Oral Surg Oral Med Oral Pathol Oral Radiol Endod* 2010; 109: 779-87.

23. Ding RY, Cheung GS, Chen J, Yin XZ, Wang QQ, Zhang CF. Pulp revascularization of immature teeth with apical periodontitis: a clinical study. *J Endod* 2009; 35: 745-9.
24. Nosrat A, Homayounfar N, Oloomi K. Drawbacks and unfavorable outcomes of regenerative endodontic treatments of necrotic immature teeth: a literature review and report of a case. *J Endod* 2012; 38(10): 1428-34.
25. Neha K, Kansal R, Garg P, Joshi R, Garg D, Grover HS. Management of immature teeth by dentin-pulp regeneration: a recent approach. *Med Oral Patol Oral Cir Bucal* 2011; 16: 997-1004.
26. Sato T, Hoshino E, Uematsu H, Noda T. In vitro antimicrobial susceptibility to combinations of drugs on bacteria from carious and endodontic lesions of human deciduous teeth. *Oral Microbiol Immunol* 1993; 8(3): 172-6.
27. Hoshino E, Kurihara-Ando N, Sato I, Uematsu H, Sato M, Kota K, et al. In-vitro antibacterial susceptibility of bacteria taken from infected root dentine to a mixture of ciprofloxacin, metronidazole and minocycline. *Int Endod J* 1996; 29(2): 125-30.
28. Sato I, Ando-Kurihara N, Kota K, Iwaku M, Hoshino E. Sterilization of infected root-canal dentine by topical application of a mixture of ciprofloxacin, metronidazole and minocycline in situ. *Int Endod J* 1996; 29(2): 118-24.
29. Ruparel NB, Teixeira FB, Ferraz CC, Diogenes A. Direct effect of intracanal medicaments on survival of stem cells of the apical papilla. *J Endod* 2012; 38(10): 1372-5.

30. Chuensombat S, Khemaleelakul S, Chattipakorn S, Srisuwan T. Cytotoxic effects and antibacterial efficacy of a 3-antibiotic combination: an in vitro study. *J Endod* 2013; 39(6): 813-9.
31. Murray PE, Garcia-Godoy F, Hargreaves KM. Regenerative endodontics: a review of current status and a call for action. *J Endod* 2007; 33: 377-90.
32. Langer R, Vacanti JP. Tissue engineering. *Science* 1993; 260(5110): 920-6.
33. Ritter AL, Ritter AV, Murrah V, Sigurdsson A, Trope M. Pulp revascularization of replanted immature dog teeth after treatment with minocycline and doxycycline assessed by laser doppler flowmetry, radiography, and histology. *Dent Traumatol* 2004; 20: 75-84.
34. Trope M. Regenerative potential of dental pulp. *Pediatr Dent* 2008; 30(3): 206-10.
35. Hargreaves KM, Cohen SR. Cohen's pathways of the pulp expert consult 10<sup>th</sup> ed: Mosby; 2010.
36. Nygaard-Ostby B, Hjortdal O. Tissue formation in the root canal following pulp removal. *Scand J Dent Res* 1971; 79(5): 333-49.
37. Horsted P, Nygaard-Ostby B. Tissue formation in the root canal after total pulpectomy and partial root filling. *Oral Surg Oral Med Oral Pathol* 1978; 46(2): 275-82.
38. Skoglund A, Tronstad L. Pulpal changes in replanted and autotransplanted immature teeth of dogs. *J Endod* 1981; 7: 309-16.
39. Kling M, Cvek M, Mejare I. Rate and predictability of pulp revascularization in therapeutically reimplanted permanent incisors. *Dent Traumatol* 1986; 2(3): 83-9.

40. Cvek M, Cleaton-Jones P, Austin J, Lownie J, Kling M, Fatti P. Effect of topical application of doxycycline on pulp revascularization and periodontal healing in reimplanted monkey incisors. *Dent Traumatol* 1990; 6(4): 170-6.
41. Yanpiset K, Trope M. Pulp revascularization of replanted immature dog teeth after different treatment methods. *Dent Traumatol* 2000; 16(5): 211-7.
42. Rafter M. Apexification: a review. *Dent Traumatol* 2005; 21(1): 1-8.
43. Huang GT. Apexification: the beginning of its end. *Int Endod J* 2009; 42: 855-66.
44. Cvek M. Prognosis of luxated non-vital maxillary incisors treated with calcium hydroxide and filled with gutta-percha. A retrospective clinical study. *Dent Traumatol* 1992; 8(2): 45-55.
45. El-Meligy OA, Avery DR. Comparison of apexification with mineral trioxide aggregate and calcium hydroxide. *Pediatr Dent* 2006; 28(3): 248-53.
46. Pace R, Giuliani V, Pini Prato L, Baccetti T, Pagavino G. Apical plug technique using mineral trioxide aggregate: results from a case series. *Int Endod J* 2007; 40: 478-84.
47. Rule DC, Winter GB. Root growth and apical repair subsequent to pulpal necrosis in children. *Br Dent J* 1966; 120(12): 586-90.
48. TakushigeT, Hoshino E. Clinical evaluation of 3Mix-MP method in endodontic treatment. *Jap J Conserv Dent* 1998; 41: 970-4.
49. Fabricius L, Dahlen G, Ohman AE, Moller AJ. Predominant indigenous oral bacteria isolated from infected root canals after varied times of closure. *Scand J Dent Res* 1982; 90(2): 134-44.

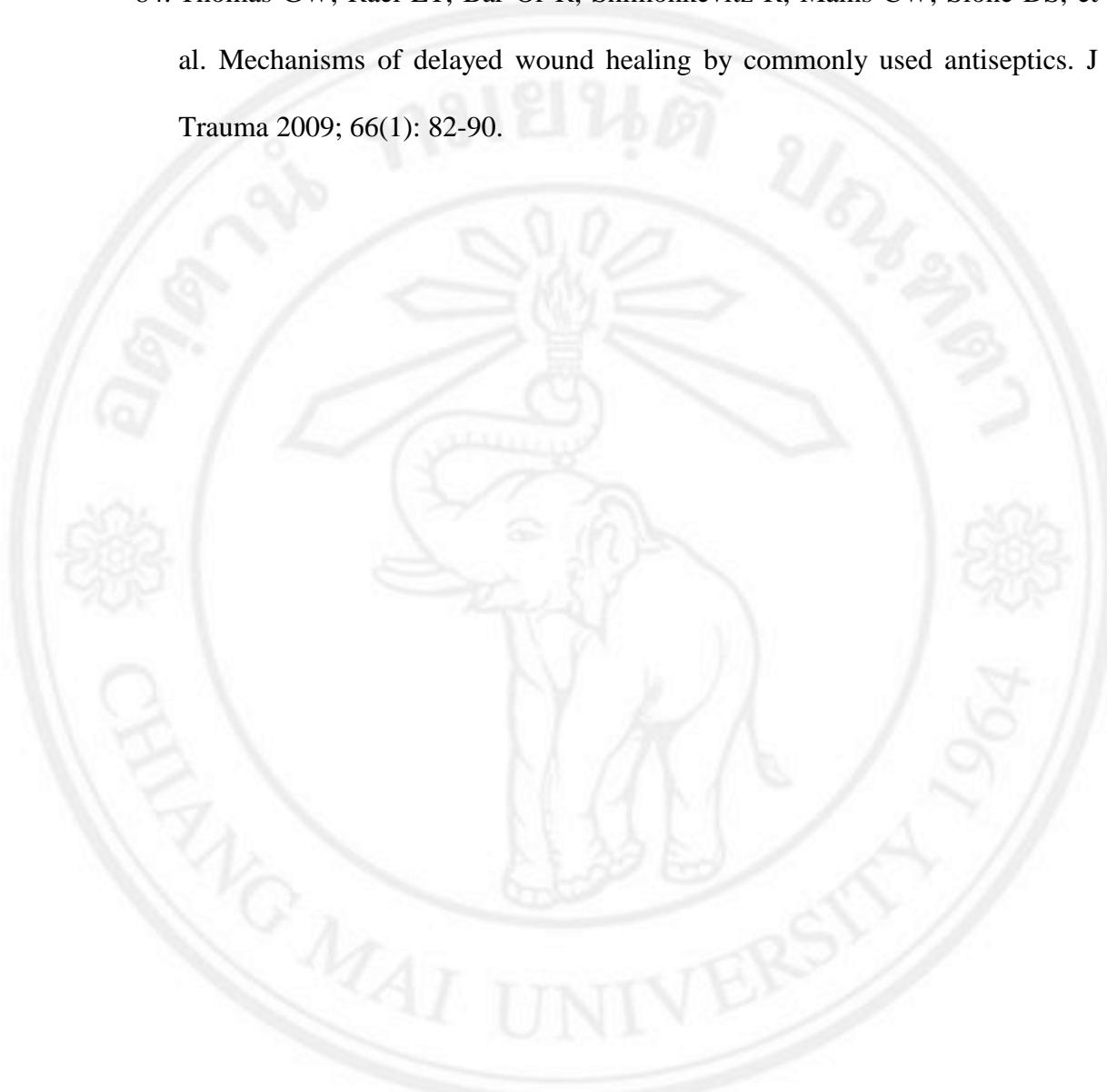
50. Windley W, Teixeira F, Levin L, Sigurdsson A, Trope M. Disinfection of immature teeth with a triple antibiotic paste. *J Endod* 2005; 31: 439-43.
51. Akgun OM, Altun C, Guven G. Use of triple antibiotic paste as a disinfectant for a traumatized immature tooth with a periapical lesion: a case report. *Oral Surg Oral Med Oral Pathol Oral Radiol Endod* 2009; 108: 62-5.
52. Gomes-Filho JE, Duarte PC, de Oliveira CB, Watanabe S, Lodi CS, Cintra LT, et al. Tissue reaction to a triantibiotic paste used for endodontic tissue self-regeneration of nonvital immature permanent teeth. *J Endod* 2012; 38: 91-4.
53. Sonoyama W, Liu Y, Yamaza T, Tuan RS, Wang S, Shi S, et al. Characterization of the apical papilla and its residing stem cells from human immature permanent teeth: a pilot study. *J Endod* 2008; 34(2): 166-71.
54. Zussman WV. Osteogenic activity of odontoblasts in transplanted tooth pulps. *J Dent Res* 1966; 45(1): 144-51.
55. Smith AJ. Pulpal responses to caries and dental repair. *Caries Res* 2002; 36(4): 223-32.
56. Hao J, Zou B, Narayanan K, George A. Differential expression patterns of the dentin matrix proteins during mineralized tissue formation. *Bone* 2004; 34(6): 921-32.
57. Hao J, Ramachandran A, George A. Temporal and spatial localization of the dentin matrix proteins during dentin biomineralization. *J Histochem Cytochem* 2009; 57: 227-37.

58. Orsini G, Ruggeri A, Mazzoni A, Nato F, Falconi M, Putignano A, et al. Immunohistochemical localization of dentin matrix protein 1 in human dentin. *Eur J Histochem* 2008; 52(4): 215-20.
59. Baba O, Qin C, Brunn JC, Wygant JN, McIntyre BW, Butler WT. Colocalization of dentin matrix protein 1 and dentin sialoprotein at late stages of rat molar development. *Matrix Biol* 2004; 23(6): 371-9.
60. Sonoyama W, Liu Y, Fang D, Yamaza T, Seo BM, Zhang C, et al. Mesenchymal stem cell-mediated functional tooth regeneration in swine. *PLoS One* 2006; 1: e79.
61. Huang GTJ, Sonoyama W, Liu Y, Liu H, Wang S, Shi S. The hidden treasure in apical papilla: the potential role in pulp/dentin regeneration and bioroot engineering. *J Endod* 2008; 34(6): 645-51.
62. Gronthos S, Brahim J, Li W, Fisher LW, Cherman N, Boyde A, et al. Stem cell properties of human dental pulp stem cells. *J Dent Res* 2002; 81(8): 531-5.
63. Thesleff I, Vaahtokari A, Kettunen P, Aberg T. Epithelial-mesenchymal signaling during tooth development. *Connect Tissue Res* 1995; 32(1-4): 9-15.
64. Robey PG. Vertebrate mineralized matrix proteins: structure and function. *Connect Tissue Res* 1996; 35(1-4): 131-6.
65. Papagerakis P, Berdal A, Mesbah M, Peuchmaur M, Malaval L, Nydegger J, et al. Investigation of osteocalcin, osteonectin, and dentin sialophosphoprotein in developing human teeth. *Bone* 2002; 30(2): 377-85.
66. George A, Sabsay B, Simonian PA, Veis A. Characterization of a novel dentin matrix acidic phosphoprotein. Implications for induction of biomineralization. *J Biol Chem* 1993; 268(17): 12624-30.

67. Martinez EF, da Silva LA, Furuse C, de Araujo NS, de Araujo VC. Dentin matrix protein 1 (DMP1) expression in developing human teeth. *Braz Dent J* 2009; 20(5): 365-9.
68. Palosaari H, Wahlgren J, Larmas M, Ronka H, Sorsa T, Salo T, et al. The expression of MMP-8 in human odontoblasts and dental pulp cells is down-regulated by TGF-beta1. *J Dent Res* 2000; 79(1): 77-84.
69. Golub EE, Boesze-Battaglia K. The role of alkaline phosphatase in mineralization. *Curr Opin Orthop* 2007; 18(5): 444-8.
70. MacDougall M, Simmons D, Gu TT, Dong J. MEPE/OF45, a new dentin/bone matrix protein and candidate gene for dentin diseases mapping to chromosome 4q21. *Connect Tissue Res* 2002; 43(2-3): 320-30.
71. Malaval L, Wade-Gueye NM, Boudifffa M, Fei J, Zirngibl R, Chen F, et al. Bone sialoprotein plays a functional role in bone formation and osteoclastogenesis. *J Exp Med* 2008; 205: 1145-53.
72. Ferreira MB, Myiagi S, Nogales CG, Campos MS, Lage-Marques JL. Time- and concentration-dependent cytotoxicity of antibiotics used in endodontic therapy. *J Appl Oral Sci* 2010; 18(3): 259-63.
73. Takushige T, Hataoka H, Ando M, Hoshino E. Endodontic retreatment using 3Mix-MP without removal of previous root canal obturation. *J LSTR Ther* 2009; 8: 3-7.
74. Mitchell DF, Shankwalker GB. Osteogenic potential of calcium hydroxide and other materials in soft tissue and bone wounds. *J Dent Res* 1958; 37(6): 1157-63.

75. Torabinejad M, Chivian N. Clinical applications of mineral trioxide aggregate. *J Endod* 1999; 25(3): 197-205.
76. Yang J, Zhao Y, Qin M, Ge L. Pulp revascularization of immature dens invaginatus with periapical periodontitis. *J Endod* 2013; 39(2): 288-92.
77. Gelman R, Park H. Pulp revascularization in an immature necrotic tooth: a case report. *Pediatr Dent* 2012; 34(7): 496-9.
78. Shin SY, Albert JS, Mortman RE. One step pulp revascularization treatment of an immature permanent tooth with chronic apical abscess: a case report. *Int Endod J* 2009; 42(12): 1118-26.
79. Reynolds K, Johnson JD, Cohenca N. Pulp revascularization of necrotic bilateral bicuspids using a modified novel technique to eliminate potential coronal discolouration: a case report. *Int Endod J* 2009; 42(1): 84-92.
80. Huang GT, Sonoyama W, Chen J, Park SH. In vitro characterization of human dental pulp cells: various isolation methods and culturing environments. *Cell Tissue Res* 2006; 324(2): 225-36.
81. Nor JE. Tooth regeneration in operative dentistry. *Oper Dent* 2006; 31(6): 633-42.
82. Sloan AJ, Smith AJ. Stem cells and the dental pulp: potential roles in dentine regeneration and repair. *Oral Dis* 2007; 13(2): 151-7.
83. Bakopoulou A, Leyhausen G, Volk J, Tsiftsoglou A, Garefis P, Koidis P, et al. Comparative analysis of in vitro osteo/odontogenic differentiation potential of human dental pulp stem cells (DPSCs) and stem cells from the apical papilla (SCAP). *Arch Oral Biol* 2011; 56(7): 709-21.

84. Thomas GW, Rael LT, Bar-Or R, Shimonkevitz R, Mains CW, Slone DS, et al. Mechanisms of delayed wound healing by commonly used antiseptics. *J Trauma* 2009; 66(1): 82-90.



ลิขสิทธิ์มหาวิทยาลัยเชียงใหม่  
Copyright © by Chiang Mai University  
All rights reserved