

Endodontic-Periodontal Interrelationships: An Online Study Guide

Abstract

The Editorial Board of the *Journal of Endodontics* has developed a literature-based study guide of topical areas related to endodontics. This study guide is intended to give the reader a focused review of the essential endodontic literature and does not cite all possible articles related to each topic. Although citing all articles would be comprehensive, it would defeat the idea of a study guide. This section will cover classification of endodontic-periodontal lesions, root amputations and hemisections, osseous grafting procedures, guided tissue regeneration, and vertical root fractures. (*J Endod* 2008;34:e71–e77)

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Introduction

The delivery of high quality clinical care requires a thorough understanding of the endodontic literature. The Editorial Board of the *Journal of Endodontics* has developed this online study guide for endodontists and fellow clinicians interested in endodontics.

There are several potential applications for an online study guide. First, an online study guide permits clinicians to focus in on particular areas of endodontics where they can quickly review key papers devoted to one particular topic. For example, this section will cover classification of endodontic-periodontal lesions, root amputations and hemisections, osseous grafting procedures, guided tissue regeneration, and vertical root fractures.

Second, a study guide permits speakers to efficiently review background material in preparation for future courses, lectures, or continuing educational events. Third, an online study guide permits students to review key papers in preparation for future examinations or for development of residency seminars. Fourth, an online study guide permits readers to quickly and efficiently access either the abstract or the entire paper cited in the Tables (see Discussion for details).

Methods

One potential problem in developing an online study guide was to provide a summary of major papers that contributed to a given topic area. The inclusion of all possible papers on a given topic would lead to an unwieldy collection that failed to clearly identify key papers in the area. Of course, exclusion of key papers is also problematic. To address this issue, the JOE Editorial Board developed the overall list of topics to be covered and then for each topic generated an initial tabulation of key historical and contemporary papers on that topic. This list was then sent to two outside reviewers who were both experienced educators and Diplomates of the American Board of Endodontics. These reviewers then recommended additions and deletions of papers to the proposed topic list.

To maintain currency, the JOE Editorial Board proposes to periodically update each topical study guide by using the same peer-reviewed process as described above.

Results

The results of the study guide (1–54) provide an overview of selected literature on classification of endodontic-periodontal lesions, root amputations and hemisections, osseous grafting procedures, guided tissue regeneration, and vertical root fractures. This information is organized into Tables 1-5.

Discussion

The journey to clinical excellence requires not only outstanding clinical skills, but also that special knowledge that accrues from a study of the endodontic literature. The purpose of the JOE online study guide is to serve as one source for efficiently reviewing key papers that are organized by topic area and presented with the advantages of online Internet technology.

Although JOE readers are undoubtedly familiar with many aspects of the Internet, there are special features available at JOE online that provide particular advantages in their application for a study guide. For example, if this particular study guide is downloaded as a pdf, it provides a useful but static listing of the cited articles. On the other hand, if the reader navigates to the Table of Contents page for the Online Study Guide and then clicks on “Full Text” (Fig. 1), they will be taken to an HTML version of the Study Guide. This online version of the study guide has special capabilities including the fact that the references are hyper-

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linked. Thus, the reader can quickly obtain abstracts of nearly all cited papers and can review the entire paper of many of the cited papers with only a few clicks of their mouse (Fig. 2). Thus, combining a study guide with online capabilities provides particular benefits for efficiently reviewing key papers in the endodontic literature.

We hope that this Study Guide will prove useful to you as one source for developing a focused and special base of endodontic knowledge. As always, we are interested in your thoughts on this initiative and how the *JOE* can better serve you, our readers. Feel free to email us at: JEndodontics@UTHSCSA.edu.

TABLE 1. Classification of Endodontic-Periodontal Lesions

Ref #	Title
1.	Seltzer S, Bender IB, Ziontz M. The interrelationship of pulp and periodontal disease. <i>Oral Surg Oral Med Oral Pathol</i> 1963; 16:1474–90.
2.	Mazur B, Massler M. Influence of periodontal disease on the dental pulp. <i>Oral Surg Oral Med Oral Pathol</i> 1964;17:592–603.
3.	Rubach WC, Mitchell DF. Periodontal disease, accessory canals and pulp pathosis. <i>J Periodon</i> 1965;36:34–8.
4.	Simon JHS, Glick DH, Frank AL. The relationship of endodontic-periodontic lesions. <i>J Periodon</i> 1972;43:202–8.
5.	Sinai IH, Soltanoff W. The transmission of pathologic changes between the pulp and the periodontal structures. <i>Oral Surg Oral Med Oral Pathol</i> 1973;36:558–68.
6.	Langeland K, Rodriques H, Dowden W. Periodontal disease, bacteria, and pulpal histopathology. <i>Oral Surg Oral Med Oral Pathol</i> 1974;37:257–70.
7.	Bergenholtz G, Lindhe J. Effect of experimentally induced marginal periodontitis and periodontal scaling on the dental pulp. <i>J Clin Periodon</i> 1978; 5:59–73.
8.	Czarnecki RT, Schilder H. A histological evaluation of the human pulp in teeth with varying degrees of periodontal disease. <i>J Endod</i> 1979;5: 242–53.
9.	Torabinejad M, Kiger RD. A histologic evaluation of dental pulp tissue of a patient with periodontal disease. <i>Oral Surg Oral Med Oral Pathol</i> 1985;59:198–200.
10.	Trope M, Tronstad L, Rosenberg ES, Listgartner M. Darkfield microscopy as a diagnostic aid in differentiating exudates from endodontic and periodontal abscesses. <i>J Endod</i> 1988;14:35–8.
11.	Rotstein I, Simon JHS. Diagnosis, prognosis, and decision-making in the treatment of combined periodontal-endodontic lesions. <i>Periodontology</i> 2004;34:165–203.
12.	Rotstein I, Simon JHS. The endo-perio lesion: a critical appraisal of the disease condition. <i>Endo Topics</i> 2006;13:34–56.

TABLE 2. Root Amputations and Hemisections

Ref #	Title
13.	Haskell EW, Stanley HR. Vital root resection on a maxillary first molar. <i>Oral Surg Oral Med Oral Pathol</i> 1972;33:92–100.
14.	Smukler H, Tagger M. Vital root amputation: a clinical and histological study. <i>J Periodon</i> 1976;47:324–0.
15.	Tagger M, Smukler H. Microscopic study of the pulps of human teeth following vital root resection. <i>Oral Surg Oral Med Oral Pathol</i> 1977;44:96–105.
16.	Haskell EW, Stanley HR, Goldman S. A new approach to vital root resection. <i>J Periodon</i> 1980;51:217–24.
17.	Langer B, Stein SD, Wagenberg B. An evaluation of root resections: a ten-year study. <i>J Periodon</i> 1981; 52:719–22.
18.	Haskell EW, Stanley HR. A review of vital root resections. <i>Int J Perio Rest Dent</i> 1982;2:29–49.
19.	Filipowicz F, Umstott P, England M. Vital root resection in maxillary molar teeth: a longitudinal study. <i>J Endod</i> 1984;10:264–8.
20.	Eastman JR, Backmeyer J. A review of the periodontal, endodontic, and prosthetic considerations in odontogenous resection procedures. <i>Int J Perio Rest Dent</i> 1986;6:35–51.

TABLE 3. Osseous Grafting Procedures

Ref #	Title
21.	Bowers GM, Chadroff B, Carnevale R, et al. Histologic evaluation of new attachment apparatus formation in humans: part 1, part II, part III. <i>J Periodontol</i> 1989;60:664–93.
22.	Mellonig JT. Periodontal bone graft technique. <i>Inter J Perio Rest Dent</i> 1990; 10:172–82.
23.	Mellonig JT. Autogenous and allogenic bone grafts in periodontal therapy. <i>Crit Rev Oral Biol Med</i> 1992;3:333–52.

TABLE 4. Guided Tissue Regeneration

Ref #	Title
24.	Dahlin C, Gottlow J, Linde A, Nyman S. Healing of maxillary and mandibular bone defects using a membrane technique: an experimental study in monkeys. <i>Scan J Plast Reconstr Hand Surg</i> 1990;24:13–9.
25.	Sottosanti J. Calcium sulfate: a biodegradable and biocompatible barrier for guided tissue regeneration. <i>Compendium</i> 92;13:226–34.
26.	Caffesse RG, Quinones CR. GTR: biologic rationale, surgical technique, and clinical results. <i>Compendium</i> 1992;13:166–72.
27.	Linde A, Algerius P, Dahlin C, Bjurstram K, Sundin Y. Osteopromotion: a soft-tissue exclusion principle using a membrane for bone healing and bone neogenesis. <i>J Periodontol</i> 1993;64:1116–28.
28.	Duggins LD, Clay JR, Himel VT, Dean JW. A combined endodontic retrofill and periodontal guided tissue regeneration technique for the repair of molar endodontic furcation perforations: report of a case. <i>Quint Inter</i> 1994;25:109–14.
29.	Rankow HJ, Krasner PR. Endodontic applications of guided tissue regeneration in endodontic surgery. <i>J Endod</i> 1996;22:34–43.
30.	Pecora G, De Leonardis D, Ibrahim N, Bovi M, Cornelini R. The use of calcium sulfate in the surgical treatment of a 'through and through' periradicular lesion. <i>Int Endod J</i> 2001;34:189–97.
31.	Garrett K, Kerr M, Hartwell G, O'Sullivan S, Mayer P. The effect of a bioresorbable matrix barrier in endodontic surgery on the rate of periapical healing: a in vivo study. <i>J Endod</i> 2002;28:503–6.
32.	Yoshikawa G, Murashima Y, Wadachi R, Sawada N, Suda H. Guided bone regeneration (GRB) using membranes and calcium sulfate after apicectomy: a comparative histomorphometrical study. <i>Int Endod J</i> 2002; 35:255–63.
33.	Dietrich T, Zunker P, Dietrich D, Bernimoulin JP. Periapical and periodontal healing after osseous grafting and guided tissue regeneration treatment of apicomarginal defects in periradicular surgery: results after 12 months. <i>Oral Surg Oral Med Oral Pathol Oral Radiol Endod</i> 2003;95:474–82.
34.	Chogle S, Mickel AK. An in vitro evaluation of the antibacterial properties of barriers used in guided tissue regeneration. <i>J Endod</i> 2003;29: 1–3.

TABLE 5. Vertical Root Fractures

Ref #	Title
35.	Meister F, Lommel TJ, Gerstein H. Diagnosis and possible causes of vertical root fractures. <i>Oral Surg Oral Med Oral Pathol</i> 1980;49:243–53.
36.	Harvey TE, White JT, Leeb JJ. Lateral condensation stresses in root canals. <i>J Endod</i> 1981;7:151–5.
37.	Pitts DL, Natkin E. Diagnosis and treatment of vertical root fractures. <i>J Endod</i> 1983;9:338–46.
38.	Pitts DL, Matheny HE, Nicholls JJ. An in vitro study of spreader loads required to cause vertical root fracture during lateral condensation. <i>J Endod</i> 1983;9:544–50.
39.	Walton RE, Michelich RJ, Smith GN. The histopathogenesis of vertical root fractures. <i>J Endod</i> 1984;10:48–56.
40.	Luebke RG. Vertical crown-root fractures in posterior teeth. <i>Dent Clin North Am</i> 1984;28:883–94.
41.	Holcomb JQ, Pitts DL, Nicholls JJ. Further investigation of spreader loads required to cause vertical root fracture during lateral condensation. <i>J Endod</i> 1987;13:277–84.
42.	Stewart GG. The detection and treatment of vertical root fractures. <i>J Endod</i> 1988;14:47–53.
43.	Schweitzer JL, Gutmann JL, Bliss RQ. Odontiatrogenic tooth fracture. <i>Int Endod J</i> 1989;22:64–74.
44.	Dang DA, Walton RE. Vertical root fracture and root distortion: effect of spreader design. <i>J Endod</i> 1989;15:294–301.
45.	Murgel C, Walton RE. Vertical root fracture in curved roots: the influence of spreader design. <i>Endod Dent Traumatol</i> 1990;6:273–8.
46.	Trope M, Rosenberg ES. Multidisciplinary approach to the repair of vertically fractured teeth. <i>J Endod</i> 1992;18:460–3.
47.	Lertchirakarn V, Palamara JEA, Messer HH. Load and strain during lateral condensation and vertical root fracture. <i>J Endod</i> 1999;25:99–104.
48.	Tamse A, Fuss Z, Lustig J, Kaplavi J. An evaluation of endodontically treated vertically fractured teeth. <i>J Endod</i> 1999;25:506–8.
49.	Chan CP, Lin CP, Tseng SC, Jeng JH. Vertical root fracture in endodontically versus nonendodontically treated teeth. a survey of 315 cases in Chinese patients. <i>Oral Surg Oral Med Oral Pathol Oral Radiol Endod</i> 1999;87:504–7.
50.	Lustig J, Tamse A, Fuss Z. Pattern of bone resorption in vertically fractured, endodontically treated teeth. <i>Oral Surg</i> 2000;90:224–7.
51.	Sugaya T, Kawanami M, Noguchi H, Kato H, Masaka N. Periodontal healing after bonding treatment of vertical root fracture. <i>Dent Traumatol</i> 2001;17:174–9.
52.	Fuss Z, Lustig J, Katz A, Tamse A. An evaluation of endodontically treated vertical root fractured teeth: impact of operative procedures. <i>J Endod</i> 2001;27:46–8.
53.	Lertchirakarn V, Palamara JEA, Messer HH. Patterns of vertical root fracture: factors affecting stress distribution in the root canal. <i>J Endod</i> 2003;29:523–8.
54.	Cohen S, Berman LH, Blanco L, Bakland L, Kim JS. A demographic analysis of vertical root fractures. <i>J Endod</i> 2006;32:1160–3.

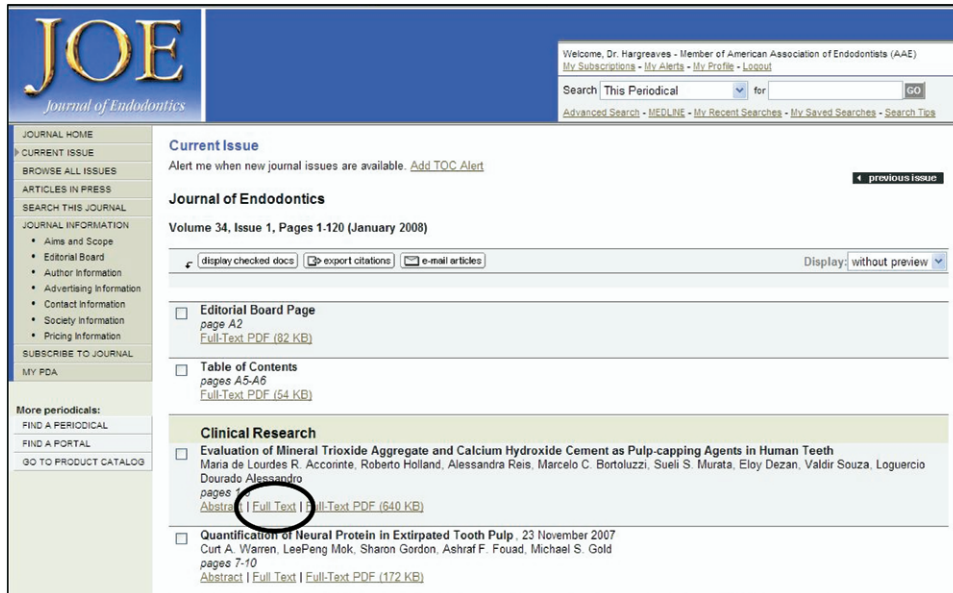


Figure 1. Navigation to HTML version.

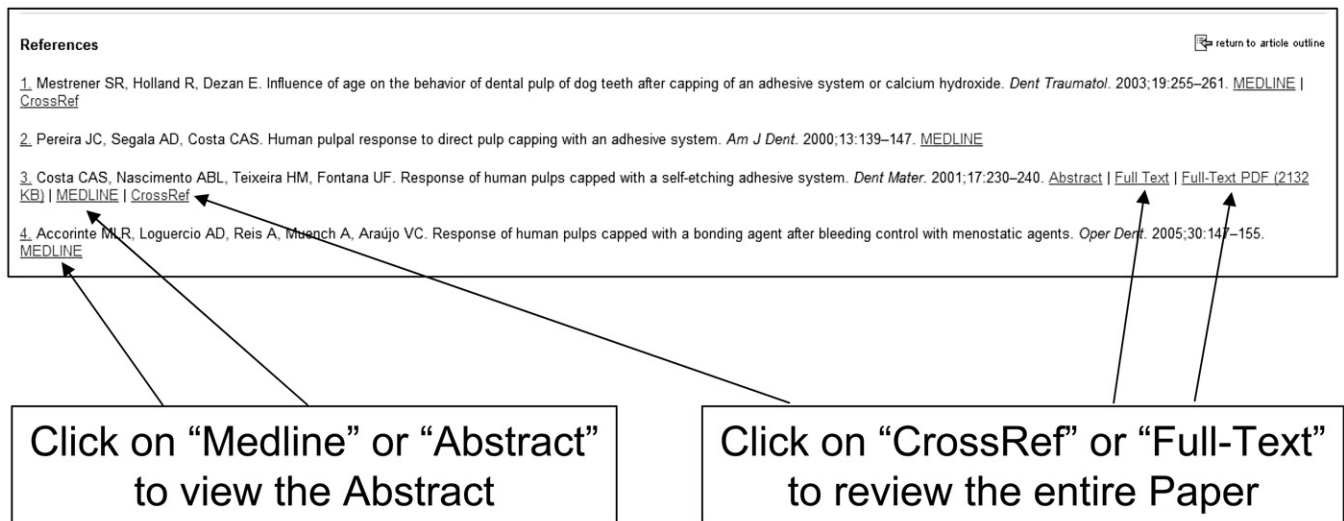


Figure 2. Hyperlink to References.

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