What Is the Outcome of an Incision and Drainage Procedure in Endodontic Patients? A Prospective, Randomized, Single-blind Study

Hannah Beus, DDS, MS, Sara Fowler, DMD, MS,† Melissa Drum, DDS, MS,† Al Reader, DDS, MS,† John Nusstein, DDS, MS,† Mike Beck, DDS, MA,‡ and Courtney Jatana, DDS, MS§*

Abstract

Introduction: There are no prospective endodontic studies to determine the outcome of an incision and drainage (I&D) procedure for swelling in healthy, endodontic patients. The purpose of this prospective, randomized, single-blind study was to compare the postoperative course of I&D with drain placement versus a mock I&D procedure with mock drain placement after endodontic debridement in swollen emergency patients with symptomatic teeth and a pulpal diagnosis of necrosis. **Methods:** Eighty-one adult emergency patients presenting with clinical swelling received either penicillin or, if allergic, clindamycin and complete endodontic debridement, and then were randomly divided into 2 treatment groups: I&D with drain placement or a mock I&D procedure with mock drain placement. At the end of the appointment, all patients received a combination of ibuprofen/acetaminophen and, if needed, an opioid-containing escape medication. Patients recorded their pain and medication use for 4 days postoperatively. Success was defined as no or mild postoperative pain and no use of an opioid-containing escape medication. Success was evaluated using repeated measure mixed model logistic regression. **Results:** Both groups had a decrease in postoperative pain and medication use over the 4 days. The mock I&D group had significantly higher success than the I&D group (odds ratio = 2.00; 95% confidence interval, 1.16–3.41). The success rate was 45% with the mock I&D and 33% with the I&D. **Conclusions:** After endodontic debridement, patients who received a mock I&D procedure with mock drain placement had more success than patients who received I&D with drain placement. Both groups clinically improved over 4 days. *(J Endod 2018;44:193–201)*

Key Words

Endodontic pain, incision and drainage, postoperative pain, pulpal necrosis, symptomatic patients

Significance

After endodontic debridement, patients who received a mock I&D procedure with mock drain placement had more success than patients who received I&D with drain placement. Both groups clinically improved over 4 days.

Endodontic textbooks recommend incision and drainage (I&D) to treat swollen endodontic patients (1, 2). As stated in the textbook *Pathways of the Pulp* (1), "…incision for drainage of any fluctuant periradicular swelling usually provides prompt improvement of the clinical signs and symptoms." Additionally, "…aggressive incision for drainage is indicated for any infection marked by cellulitis" (1). The rationale is that I&D prevents further spread of the infection; it relieves pressure and pain; and it allows the introduction of oxygen, which may aid in reducing the number of anaerobic bacteria (1, 2). However, there is no evidence-based research to support that the outcome of an endodontic I&D procedure is related to these factors. There is agreement that debridement of the tooth results in a significantly higher success rate (no or mild postoperative pain and no use of narcotic medication) in symptomatic patients with pulp necrosis and a periapical area (3).

In medicine, Schmitz et al (4) commented that there is limited evidence available to guide treatment strategies for cutaneous swellings. A study by Flynn et al (5) indicated the length of hospital stay for patients who underwent I&D, whether it was for a cellulitis or fluctuant swelling, did not statistically differ from patients not receiving I&D. Treatment for deep neck infections varies from immediate I&D (fluctuant swellings) to instituting a trial of intravenous antibiotics (cellulitis) (6). Shanti and Aziz (6) concluded that the clinical management of swellings was based more on opinion than supported by facts.

Some algorithms for I&D are based on the presence or absence of purulence (6). In oral surgery, and in opposition for I&D to treat cellulitis, it has been stated that "incision and drainage into an unlocalized cellulitis in an erroneous search for pus can disrupt the physiologic barriers and cause diffusion and extension of the infection" (7) and "early stage infections that appear as a cellulitis with diffuse swelling do not respond to incision and drainage" (8). On the other hand, it has been stated that "…incision and drainage must be performed before the amount of tissue destruction and suppuration is sufficient to be detected by palpation …the patient is saved discomfort and the possibility of further complications" (9).

There are no prospective endodontic studies to determine the outcome of an I&D procedure in healthy patients. The expectation was that there would be a postoperative

From the *Private Practice Limited to Endodontics, Reno, Nevada; Divisions of †Endodontics, ‡Biosciences, and §Oral and Maxillofacial Surgery and Anesthesiology, The Ohio State University, Columbus, Ohio.

Dr Beus is a former graduate student in endodontics at The Ohio State University, Columbus, OH.

Address requests for reprints to Dr Al Reader, Division of Endodontics, College of Dentistry, The Ohio State University, 305 W 12th Avenue, Columbus, OH 43210.
E-mail address: reader.2@osu.edu

0099-2399/$ - see front matter

Copyright © 2017 American Association of Endodontists.

https://doi.org/10.1016/j.joen.2017.09.015

decrease in pain and use of narcotic medications after endodontic debridement and an I&D procedure of a symptomatic necrotic tooth. Therefore, the purpose of this prospective, randomized, single-blind study was to compare the postoperative course of I&D with drain placement versus a mock I&D procedure with mock drain placement after endodontic debridement in swollen emergency patients with symptomatic teeth and a pulpal diagnosis of necrosis.

Materials and Methods

One hundred twenty-two adult emergency patients were recruited for the study. Twenty-seven were not eligible, and 14 declined participation (Supplemental Fig. S1 is available online at www.jendodon.com). A total of 81 patients completed the study and were used for data analysis. The patients completed a written health history form and were verbally questioned to confirm American Society of Anesthesiologists class I (healthy, nonsmoking, and no or minimal alcohol use) or class II (mild diseases only without substantive functional limitations) health status. Exclusion criteria were as follows: younger than 18 years old, allergies to local anesthetics or sulfites, pregnancy, a history of taking steroid medications, or immunocompromised. According to classification II, well-controlled diabetic patients (type 2) and patients with well-controlled hypertension were included. We excluded patients with a history of myocardial infarction, cerebrovascular accident, transient ischemic attack, or coronary artery disease/stents because they would be placed in American Society of Anesthesiologists class III; patients who took pain medication within the last 8 hours; and patients who were unable to give informed consent.

The Ohio State University Human Subjects Review Committee approved the study, and written informed consent was obtained from each patient. After completion of the medical history and consent form, the subjects completed the Corah Dental Anxiety Scale questionnaire (10).

Emergency patients included in the study had a clinical diagnosis of a symptomatic tooth with a pulpal diagnosis of necrosis, periapical radiolucency, and clinical swelling (fluctuance or cellulitis). Only patients with swelling related to an odontogenic cause participated. All initial swellings were buccal or facial vestibular swellings extending into the soft tissue of the cheek or lips (buccal space or maxillary or mandibular anterior lip) (Figs. 1–4). The swellings did not involve deep fascial spaces (submental, sublingual, submandibular, infraorbital, or parapharyngeal). Each tooth tested negative (80/80 reading) using an electric pulp tester (Analytic Technology Corp, Redmond, WA) and 1,1,1,2-tetrafluoroethane refrigerant spray (Endo-Ice; Hygenic Corp, Akron, OH). A periapical image of the tooth was obtained using a paralleling device (Rinn Corp, Elgin, IL) and digital radiography (Schick Technologies, Long Island, NY). No patients exhibited a draining sinus tract.

When this study was initially under review by The Ohio State University Human Subjects Review Committee, they were concerned that having swollen patients with an active "infection" who received no I&D or an active I&D could become worse over time without antibiotics. Because there was no evidence-based research in endodontics on the outcome of an I&D procedure, the review committee required patients to be placed on antibiotics. A number of presenting patients were already on antibiotics. If patients presented to the clinic already taking an antibiotic, they were instructed to finish their current regimen if the antibiotic and dose were clinically appropriate. Because tetracycline, erythromycin, and metronidazole alone were not appropriate antibiotics (11, 12), patients taking them were switched to penicillin or, if allergic, clindamycin. Patients who were not on antibiotics received a prescription for a 7-day supply of an antibiotic (500 mg penicillin; if allergic, 300 mg clindamycin) to be taken every 6 hours until gone (11).

Each patient rated his or her initial pain on a Heft-Parker visual analog scale (VAS) (13). The VAS was divided into 4 categories as described previously (14).

The maximum dimension of the swelling was measured extraorally using a clear flexible ruler (No. 36; C-Thru Ruler Co, Bloomfield, CT). The patient's body temperature was taken orally using a digital thermometer (Sure Temp; Welch Allyn Ltd, Navan, CO). At the time of treatment, patients did not have malaise, lymphadenopathy, trismus, or

Figure 1. A 46-year-old woman (tooth #19) with a clinical diagnosis of cellulitis (initial presentation). At 4 days, she had visible improvement of her swelling, and, according to her survey, she had decreased pain and use of pain medications. What procedure did the patient receive: I&D or mock I&D? I&D.

Download English Version:

https://daneshyari.com/en/article/8699725

Download Persian Version:

https://daneshyari.com/article/8699725

Daneshyari.com