

Emergency Pain Management in Symptomatic Pulpo-Periradicular Pathosis- Case Series

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Abstract

Medical Management is not the only choice for managing emergency endodontic pain. Numerous studies indicate that various clinical treatments provide substantial benefit for relief of odontogenic pain. The goal of emergency treatment in case of pulpal inflammation and infection is to achieve drainage and to relieve pressure from the tissue spaces. This case series describes the emergency treatment of symptomatic periapical abscess with a defined swelling in the anterior hard palate and cellulitis of orofacial region with pulpectomy and incision and drainage.

This article focuses on procedures used to treat endodontic emergencies with local application of triple antibiotic paste as intracanal medicament. Although systemic analgesics and antibiotics appear to be clinically effective as an adjunct in certain emergency surgical and nonsurgical endodontic procedures, removal of the cause for pain and local application of Triple Antibiotic Paste as medicaments within the root canal system may be a more effective mode for drug delivery in endodontics.

Key message is incision and Drainage is the treatment of choice in case of acute endodontic abscess. However local application of antibiotic as an intracanal medicament is a better option than systemic intake.

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Introduction

Many clinicians focus on drugs for emergency pain management. However this is not the only aspect of the clinician's armamentarium for managing endodontic pain. The initial challenge for the clinician is to understand the biological process resulting in pain especially when there is varied levels of pain threshold in patients^{1,2}. In cases of necrotic teeth with periapical abscess, there is no blood supply. Hence placement of medicament locally within the root canal helps eliminate the bacteria and helps in healing³. Local application of antibiotics in the root canal has been suggested to

overcome the potential risk of adverse systemic effects of antibiotics and as an effective mode for drug delivery in teeth lacking blood supply due to necrotic pulps or pulp-less status⁴. Hoshino et al determined that triple antibiotic paste (TAP), a combination of ciprofloxacin, metronidazole and minocycline, each at a concentration of 25µg per ml (0.0025 per cent) of paste, was able to disinfect infected root dentine in vitro⁵.

A thorough examination of hard and soft tissues and results of specific tests, radiographs and the history, the clinician can determine the procedure or combination of procedures that will most likely relieve the patient's pain. These clinical treatment options include pulpotomy, pulpectomy, incision and drainage, trephination and occlusal adjustment for specific situations¹. This article includes case series of symptomatic pulpo-periradicular pathosis and its pain management.

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Case report 1.

A 22 year old male patient complained of a palatal swelling with severe pain with the same. There was no history of trauma. He was a known

asthmatic. The swelling gradually increased over size over a period of 15 days and the pain was present since 2 days. On intraoral examination, there was a well-defined palatal swelling on right side in relation to permanent maxillary right lateral incisor [PMRL] and permanent maxillary right canine [PMRC].

Thermal tests revealed non vital PMRL and PMRC and there was trauma from occlusion in relation to same. Incision was placed on the most dependent area of the swelling and the pus was drained. Access was opened with PMRL and PMRC, apical trephination was done through the teeth and drainage was established through the canals. The teeth were relieved out of occlusion and left open for a day with access opening packed with cotton. In the next visit (after 24 hrs) it was observed that the swelling had resolved and there was no active drainage from the canals. The treatment was completed in multi-visit using triple antibiotic paste³ (combination of ciprofloxacin, metronidazole and minocycline in the ratio 1:3:3) as intracanal medicament (Figure 1).



Figure 1. Shows from left to right, preoperative palatal swelling, IOPA showing large radiolucency under lateral incisor, abscess drainage through access opening, 24hrs after the access opening.

Case report 2

A 53 year old female patient complained of severe pain in the lower right jaw. The pain was spontaneous, generalized, throbbing in nature. The patient was unable to bite from that side. There was no contributory medical history. On clinical examination, there was a fixed dental prosthesis (FPD) in relation to permanent mandibular right first premolar [PMRFP] up till permanent mandibular right second molar. There was no intra oral swelling. PMRFP was tender on percussion. On radiographic examination, there was a periapical radiolucency in relation to PMRFP. The FPD was removed and access opening was done with PMRFP and the pus was drained through the tooth and closed with the

temporary restoration. The pain was reduced instantly without any systemic analgesics or antibiotics. The root canal treatment was completed in multiple visits using triple antibiotic paste as intracanal medicament (Figure 2)



Figure 2. Shows from left to right, Preoperative FPD presence on 28,29,30,31, IOPA reveals periapical radiolucency with 28, pus drainage through access opening after FPD removal.

Discussion

The key point for a clinician is to understand the biological process resulting in pain and swelling¹. Pulpal necrosis may result in a periradicular abscess with swelling. In case 1, where there was symptomatic apical abscess the pain was reduced instantly as the pressure was released after the drainage. The goal of emergency treatment for patients with swelling is to achieve drainage and the objective of drainage is to evacuate pus from the tissue spaces. In endodontic cases with fluctuant swelling, a combination of canal instrumentation and incision and drainage results in greater pain relief.⁶

When medical therapy is ineffective intra oral and extra oral drainage may be useful for successful treatment of extensive odontogenic infection⁷. The biological basis for the high level of success associated with these procedure is probably associated with alteration of hemodynamics and interstitial fluid pressure⁸.

In case 2, due to various reasons for failure of FPD, there was periapical abscess formation and no path for pus drainage. When this was drained through the access opening, there was great relief for the patient. Systemic analgesics will not gain any added advantage as the mechanism of pain is different in this case⁹ (due to increase in tissue pressure).

Systemic antibiotics were not prescribed as it is ineffective in necrotic periapical spaces. Although it appears to be clinically effective as an adjunct in certain surgical and nonsurgical endodontic procedures, but there is potential risk

of adverse systemic effects, such as allergic reactions, toxicity and the development of resistant strains of microbes.⁴ In addition, the systemic administration of antibiotics relies on patient compliance with the dosing regimens followed by absorption through the gastrointestinal tract and distribution via the circulatory system to bring the drug to the infected site. Hence, the infected area requires a normal blood supply which is no longer the case for teeth with necrotic pulps. Therefore, local application of antibiotics within the root canal system may be a more effective mode for delivering the drug⁴. A clinical study has shown the effectiveness of triple antibiotic paste in emergency pain reduction.¹⁰ It is also shown to be effective in managing inter-appointment flare-ups.¹¹

Conclusions

Although there are numerous analgesics and antibiotics at our disposal, the best means to reduce endodontic pain is to remove the source as quickly as possible. Therefore, if the patient with emergency endodontic pain is able to present to the dental clinic and local anesthesia can be achieved, then the source of pain should be dealt with, whether by means of a pulpectomy, incision and drainage or an extraction.

Application of TAP as an intracanal medicament is better than administering systemic antibiotics in necrotic cases.

Declaration of Interest

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