

# "MID TREATMENT FLARE-UPS IN ENDODONTICS : A NIGHTMARE FOR CLINICIANS"

**Dr. G.D. Singhal**  
Professor & Head

**Dr. Mohit Sharma**  
Senior Lecturer

**Dr. Devvrat Singh**  
Senior lecturer

Dept of Conservative Dentistry & Endodontics, Shree Bankey Bihari Dental College, Ghaziabad.(U.P)

## Abstract

Inter-appointment flare-up is characterized by pain, swelling or both following endodontic intervention. Flare-ups during endodontic treatment are an undesirable occurrence for both patient and clinician and leads to an unscheduled visit by the patient to the dental clinic. This paper reviews the predisposing factors responsible for flare-ups, their management and prevention of flare-ups.

**Key words-** Flare-ups, Pain, Swelling, Emergency

## Introduction

Mid-treatment flare-up is a true complication characterized by pain, swelling or combination of both, which commences within a few hours or days following root canal procedures and is of sufficient severity that requires an unscheduled visit by the patient to the dental clinic for emergency treatment.<sup>1</sup> Pain may occur soon after initiating endodontic treatment for an asymptomatic tooth or shortly after the initial emergency treatment or during the course of the treatment.

The occurrence of mild pain and discomfort following endodontic treatment is common even when the treatment has followed acceptable standards, and this should be expected and anticipated by the patients. However, an inter-appointment flare has been demonstrated to be an unusual occurrence with frequencies ranging from 1.4% -16%.<sup>2,3</sup> According to Weine<sup>4</sup> most flare-ups occur when improper treatment is rendered or when insufficient time is allowed for specific modalities in therapy. Acute periapical inflammation is the most common cause of mid treatment pain and swelling. Mid treatment emergencies are related to irritants left within root canal system, iatrogenic factors under the control of the operator and host factors.<sup>5</sup>

## Etiology

Seltzer discussed a number of hypothesis thought to be related to the etiology of flare-ups.<sup>6</sup>

**1. Alteration in local adaptation syndrome:** There is a local tissue adaptation to applied irritants. When a new irritant, in the form of medicaments, irrigating solutions or debris is introduced to the inflamed tissue a violent reaction may occur, indicative of alteration of local adaptation syndrome.<sup>6</sup>

**2. Apical extrusion of infected debris:** It can lead to transient disruption in balance between microbial aggression and host defense in such a way that host will mobilize an acute inflammation to re-establish the balance. It is one of the principle causes of post operative pain.<sup>3</sup>

**3. Secondary intra radicular infections:** It is caused by microbes not present in primary infection. They usually get entry in root canal in between appointments via leaking temporary restorations, fractured tooth or when the tooth is left open for drainage.

4. Increase of oxidation reduction potential.
5. Changes in periapical tissue pressure.
6. Microbial factors.
7. Effects of chemical mediators
8. Changes in periapical tissue pressure.
9. Immunological phenomena.

## Prevention of Flareups :

Flare ups causes a dilemma to the clinician when it is difficult for the patient to comprehend that they enter the office pain free, but experience a sustained increase or severe pain during or after treatment. Certain precaution that are taken by a clinician can prevent flare-ups in most instances.<sup>7</sup>

- Proper diagnosis
- Determine correct working length.
- Complete extirpation of vital pulp.
- Selection of instrumentation technique that extrudes less amount of debris apically. Eg: Crown down technique.
- Copious irrigation- Preferably with combination of irrigants such as sodium hypochlorite and chlorohexedine.

- Completion of chemo-mechanical procedures in single visit.
- Do not leave tooth open for drainage.
- Reduce tooth from occlusion especially if apex is severely violated by over instrumentation.
- Placement of intra-canal medicaments in case of infected teeth.<sup>7</sup>
- Prescription of mild analgesics and antibiotics whenever condition warrants it.

## Management<sup>9</sup>

Establishing the cause the flare-up is an important step towards management of mid treatment pain. It is necessary to forewarn the patient that he may experience slight pain after the appointment and advise an analgesic. When patient experience moderate to severe pain after the first appointment, the clinician must review the diagnosis & treatment plan and take prompt measures to relieve pain of the patient.

## Pain associated with over-Instrumentation

It can manifest as Acute periapical peridontitis or as Phoenix abscess. The sign and symptoms mimic that of acute periapical abscess. Absence of an apical stop and presence of blood in the apical portion of the root canal usually indicates over-instrumentation.<sup>5</sup> Treatment consist of copious irrigation, debridement of the root canal and drainage either through the canal or trephination depending on the intensity of the pain. Antibiotics and analgesics can be prescribed.

## Pain subsequent to vital pulp extirpation

Mid treatment pain following complete removal of vital pulp is uncommon. When pain is intense it indicates incomplete removal of vital pulp tissue and if the tooth becomes tender, the inflammation process has involved the peri-apical tissues. Treatment consists of reestablishing the working length, complete removal of the remaining vital pulp tissue and relieving the tooth from occlusion.<sup>8</sup>

## Pain associated with pulpal necrosis

Studies suggest that the incidence of flare-ups is higher with necrotic pulp tooth than in vital tooth. The best method of managing the necrotic pulp is to establish accurate working length of tooth and complete instrumentation of root canal in the first appointment. If there is pus in the canal without soft tissue swelling it indicates an acute abscess in early stages, in such cases pain is more severe. If only pain is present copious irrigation should be used and all debris are removed. An intracanal medicament is placed and resealed.<sup>7</sup> If pain is present along with swelling then drainage should be established either through the apex of the tooth or the soft tissue. The use of antibiotics alone without establishing drainage is not considered appropriate.

## Conclusion

Even though it has been demonstrated that flare-ups has no significant role in treatment outcome, its occurrence is extremely undesirable for both patient as well as clinician. Therefore, in an attempt to prevent flare-ups clinician should employ proper measures and follow appropriate guidelines of a standard endodontic therapy. In case of a mid-treatment flare-up, prompt and effective treatment is an essential part of the overall endodontic treatment.

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