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Approximately 90% of patients requesting treatment for the relief of pain to a dental office have pulpal and/or periapical disease and thus are candidates for endodontic therapy.

A treatment usually has some upsetting effect on the practitioner. Time must be taken from another scheduled patient to dispense the needed relief. Being conscientious, the dentist wishes to spend any necessary time that is required to get the patient out of pain yet wishes to disrupt the normal schedule only minimally.

## **Acute pulpitis:**

For a diagnosis of acute pulpitis to be made, the pain must come from a vital pulp in a tooth without tenderness to percussion. These two determinations establish that the inflammation has not yet reached the apical portions of the root canal and probably is confined to the coronal pulp. Radiographically there is no change from normal in the periapical tissues because the inflammation has not reached that area. However, some cause of coronal pulp inflammation, such as deep caries, extensive restoration, trauma, or pulp capping, must be shown.



Accordingly, when minimal time is available, in a posterior tooth the correct emergency treatment is a pulpotomy. Local anesthetic is administered, and the correct access cavity prepared. By means of spoon excavator and large round bur, the coronal portion of the pulp is removed, leaving vital tissue inside the pulp canals. A cotton pellet is moistened with formocresol and placed over the canal orifices for 1 minute. This pellet is discarded; a new pellet very lightly dampened with formocresol is placed in the chamber, and the access cavity is closed with zinc oxide-eugenol (ZOE), accelerated with zinc acetate crystals the patient is then given another appointment for completion of the endodontic treatment.

The action of the formocresol is to fix the non-inflamed tissue left in the root until subsequent treatment thoroughly debrides the canal content. Because formocresol is toxic, its action must be kept within the pulp canals.

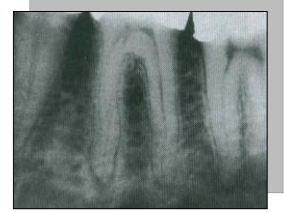
In single-rooted teeth, it is just as easy to remove the pulp totally as to perform a pulpotomy at the time emergency treatment for acute pulpitis. Accordingly, this procedure is followed if sufficient time and canal width allow for complete pulpectomy. With the entire pulp removed, a cotton pellet with no dressing is sealed in before ZOE temporary filling.

## Endodontic emergency treatment

### **Acute pulpitis with Apical Periodontitis:**

The most difficult emergency condition to treat is acute pulpitis with apical periodontitis. This is particularly true in mandibular molars, where an insufficiency in depth of anesthesia is not an uncommon problem. Considerable time is usually required for the emergency treatment of this condition because the inflamed tissue that must be removed is in the apical portion of the root canal.

The diagnosis of acute pulpitis with apical periodontitis is usually simple to make. The patient is aware of the tooth's tenderness to percussion and may request that the dentist not tap that particular part of arch during the oral examination. In the most typical classic situation, heat causes the intense pain, whereas cold relieves. Some patients may come to the dental office with a glass of ice water that they have been taking periodically to keep the pain to a minimal level of intensity.



Heavy dosage of local anesthetic is administered, with two carpules being required for most posterior teeth. The correct access cavity is prepared. In some cases when the pulp has been severely inflamed for a considerable time, the patient may complain of sensitivity to access preparation, even after good signs of paresthesia have been obtained.

Once a hole in the roof of the chamber has been opened, anesthetic is applied directly to the vital pulp, and generally no further pain will be experienced.

If sufficient time exist, the complete pulpectomy is preferable for molar teeth with this condition. Care must be exercised to ensure that all canals have been located and debrided. This means that radiographs with files in place must be taken and evaluated.



The access cavity is closed with a sterile cotton pellet and ZOE, accelerated with zinc acetate crystals, and the occlusion is checked.

### **Pulp Necrosis:**

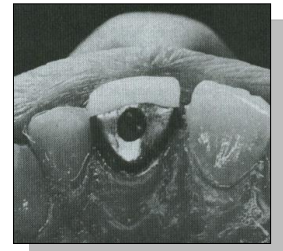
Pulp necrosis rarely causes an emergency procedure. Usually, the condition is first discovered through periapical films during radiographic examination or through the findings of swelling or distention of periapical tissue during digital examination. However, the patient may notice a swelling and request emergency treatment. Even through a true emergency does not exist a patient with this problem must not kept waiting more than a day or two. The area might become acute and a sever condition result.

## Endodontic emergency treatment

### Acute periapical abscess:

The diagnosis of acute periapical abscess is obvious. The patient has a local or diffuse swelling; the responsible tooth is tender to percussion, mobile, and lacks sensitivity during the vitality test. Generalized pain may be absent despite the discomfort of the swelling. In many patients, pain is present before the swelling occurs as the toxic products build up pressure on the surrounding periapical tissue. Once the bone is perforated and there is room for the exudates to expand through the soft tissues, pain may be relieved and certainly is lessened.

Whenever possible, the acute periapical abscess should be incised and drained through the root canal space, even if this requires the removal of an existing restoration. The indications for an incision and drainage through the tissue are few. The correct access cavity is prepared, always using the highest-speed handpiece available to minimize the vibrations that are so painful in this condition. If the patient still experiences painful vibrations, stick impression compound may be softened by hot tap water and tightly placed across the facial surfaces of the abscessed tooth and the teeth adjacent. Cool water makes the stick compound solidify and acts as a splint to lessen the vibration.



Local infiltration anesthetic should not be administered in the distended area because of the pain caused by the injection, the chance for dissemination of virulent organisms, and the ineffectiveness of such anesthesia. Block anesthesia usually is effective, however, and may be administered when the patient remains uncomfortable during the initial phases of the emergency treatment.



In many cases, drainage will occur immediately on removing the pulp chamber roof, with a bloody and / or purulent exudate discharging through the access opening.

To relieve this problem, the apical constriction is purposely violated and enlarged to a minimum of a size 25 or 30 instrument, to allow for exudates drainage through the tooth.

Recently there has been an alteration in the most desirable method for treating an acute periapical abscess with drainage. This regimen allowed for drainage, but the emergency appointment ended with the access cavity closed. To accomplish this, it was necessary for the dentist to have an extra chair available because the patient had to be allowed to sit with the tooth draining for as long as an hour or even more. Also, the dentist had to have sufficient time available to check on the patient to observe the stages of draining and then be able to do some canal preparation before closing the tooth. For best therapy, it was necessary



## Endodontic emergency treatment

for a dental assistant to remain with draining emergency patient while the doctor was in another operatory treating a different patient.

At the emergency appointment, the preferred irrigant in the initial stages of inducing drainage should be warm sterile water or saline. The sodium hypochlorite normally used has tendency to clump the exudates, which might cause plugging of the apical constriction and halts drainage. When patency through the apex is maintained, sodium hypochlorite may be used if further canal preparation is to be performed at the emergency appointment.

When the patient returns after having a tooth left open for the appointment when the access will be closed without filing, another adjustment is recommended. The preferred irrigants are alternating use of sodium hypochlorite and hydrogen peroxide. These two solutions cause foaming when used together and will aid in the bubbling out of any debris that might be packed in the canal. This reduces the need for files or reamers to clean an open canal when it is necessary to close a case without canal preparation. To prevent buildup of nascent oxygen, the sodium hypochlorite must always be the final irrigant used, until all foaming has stopped. This must be done before sealing of the access cavity.

