2. Periodontal evaluation—to identify the hopeless teeth, those with guarded prognosis, and those that are treatable, with the type of temporary splinting required, if necessary
3. Excavation of deep carious lesions—with pulpotomy if pulp is exposed, until endodontic therapy may be initiated, and with placement of sedative dressing if unexposed
4. Final establishment of treatment plan—recording of specific treatment needed for each tooth and/or area, time requirements for each phase, and coordination if the services of more than one dentist are to be utilized

B. Treatment phase
1. Surgical treatment—including extraction of hopeless or superfluous teeth and ridge preparation for prosthetic appliances, if necessary
2. Temporary splinting—to support weakened teeth during periodontal and/or endodontic therapy
3. Periodontal therapy—including all the needed ramifications, such as scaling, curettage, surgery, equilibration, and directions for home care
4. Endodontic therapy—if needed, performance possible at the same time as periodontal treatment; if different dentists are involved, coordination of work necessary for the timing of certain procedures, such as root amputation, periapical surgery, and periodontal surgery
5. Restorative and replacement procedures; in certain cases, additional areas of dental treatment, such as orthodontics, may be required

C. Maintenance phase
1. Routine oral prophylaxis and supervision of correct home care
2. Radiographic examination—periapical films of all endodontically involved teeth plus any areas of possible problems, periodic bite-wing x-ray films every 4 to 6 months, and complete series every 1 to 3 years
3. Repair—needed treatment as required, should be only minor in nature for at least the first few years after return to oral health

The treatment plan is not infallible and must have some degree of flexibility. There must be some allowance for possible failure of response on the part of key teeth that are difficult to treat and for setbacks during phases of therapy.

Timing for Endodontics in Total Patient Care

Endodontic therapy must be initiated early in the treatment phase for two important reasons. If treatment is indicated but not started, the patient may have a painful experience from a deep carious lesion causing a pulp exposure, from a chronic pulpitis or periapical lesion becoming acute, or from an acute alveolar abscess. Also, there must be sufficient time to evaluate the results of treatment on any teeth in which the prognosis was questionable. Although most endodontic therapy is predictable, certain key teeth may be treated but the final result remains in doubt because of difficulties encountered during treatment or because of the preoperative condition of the tooth. When some time is available for observation before the tooth is restored or involved as an abutment, a better determination may be made concerning the result (Figure 2-37). If the questionable tooth appears to be failing, the treatment plan must be altered.

Endodontic therapy is frequently performed concomitantly with periodontal measures. Because certain teeth may require treatment of both types, combined therapy is important. If one condition is treated while the other area is even temporarily neglected, the untreated condition may delay the normally expected healing of the treated phase.

Case Presentation

Many patients have a completely erroneous idea of endodontic therapy. The thought of having a "nerve" removed or falsehoods heard from acquaintances are sufficient to create fear in even the most cooperative individuals. A brief and sincere explanation of the significant points of treatment is important in allaying suspicions and gaining the ultimate in patient cooperation. The type of case presentation varies with the personality of the practitioner and the attitude of the patient. A brief example of the presentations that I normally use in my practice will be described here. Modifications may be needed when used by others, but these samples should be an aid to dentists wanting to develop a case presentation suited to their individual practice.

A slight variation exists between the case presentation for a tooth with a definite periapical radiolucency and that for a tooth with no obvious radiographic damage. For a tooth with a relatively normal radiographic appearance in which the preoperative condition is acute or chronic pulpitis or necrosis, the following description of treatment is given the patient. "According to the information gained from the x-ray films that were taken and the tests that were performed, it is clear that the pulp, which is in the center of your tooth, has become inflamed (or has started to die or died, as the case may be). Some people refer to the pulp as the nerve because pain emanates from it; however, because much more is present than just nerve tissues—blood vessels and packing cells in particular—pulp is the correct term. Unfortunately, pulp tissue has a very poor ability to heal after injury, so you are faced with the choice of removing the tooth or removing the pulp and retaining the tooth."

For a tooth with an obvious periapical lesion, the start of the case presentation is slightly changed. The area on the x-ray film is shown and the following told to the

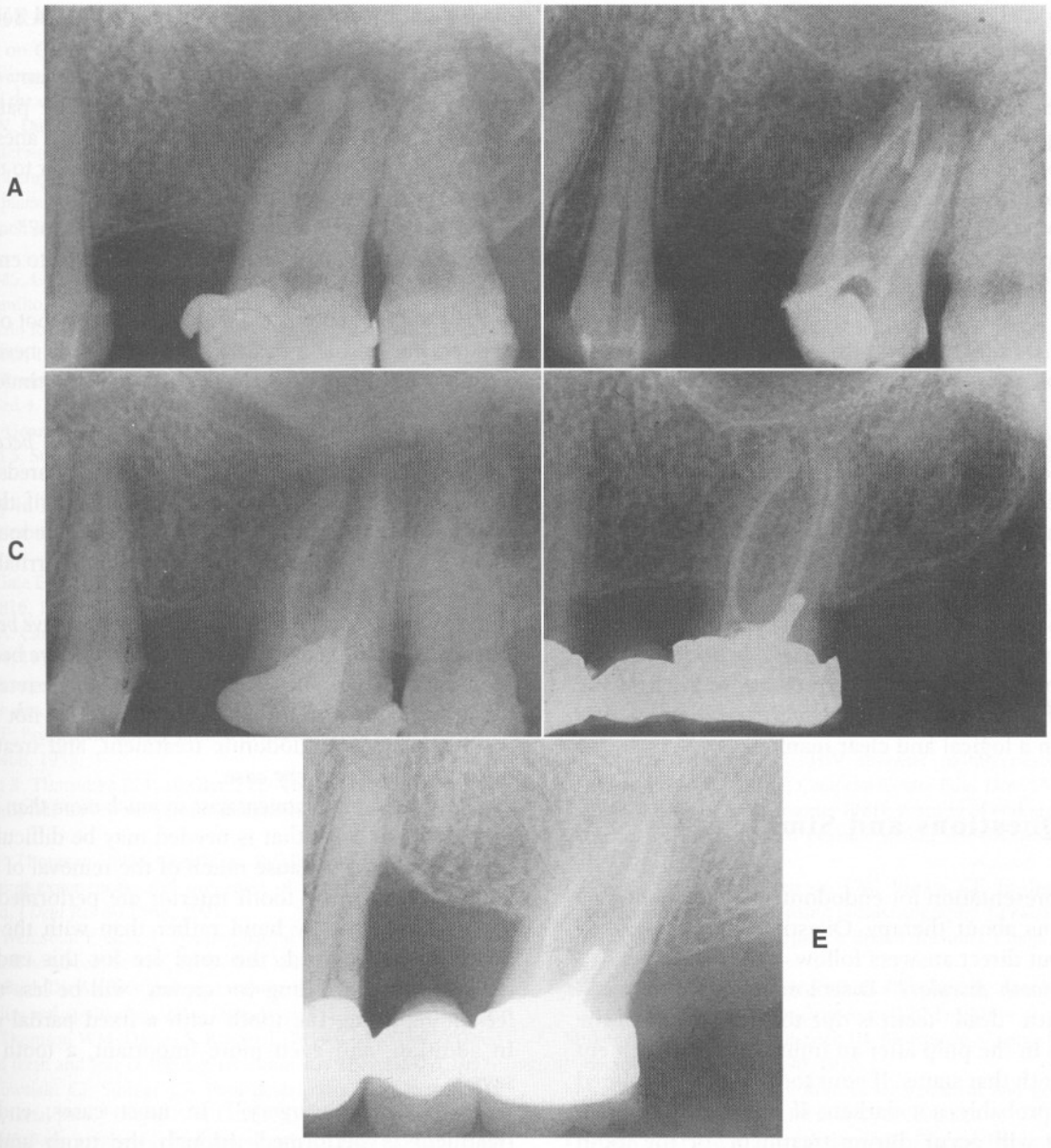


FIGURE 2-37 Total treatment plan may at least partially depend on the results of endodontic therapy. A, Preoperative film indicates large periapical lesion associated with the maxillary second molar. Third molar is not a very desired abutment but may be needed if endodontics is not successful on the second molar. **B,** After canal filling. Although result seems satisfactory, a period of waiting should now be observed to ensure that the lesion will heal. **C,** Temporary crowns have been made, and 4 months after treatment the film indicates advanced healing. Now the third molar may be extracted. **D,** Eleven years after original treatment, area looks excellent. **E,** Twenty-one years after original treatment, valuable posterior abutment remains in excellent condition. (Restoration by Dr. Robert Wheeler, Chicago.)

patient. "According to the x-ray films taken and the tests performed, it is clear that you have an abscessed tooth. There are various types of abscesses, and yours is a chronic abscess, one that is in a quiet state rather than causing a swelling. The abscess started because the pulp inside the tooth has died and has attracted bacteria, debris, or other irritating substances to the bone surrounding the tooth. Some people refer to the pulp as the nerve because pain may come from it; however, because blood vessels and packing cells are also present, pulp is the correct term. The abscess will heal if the tooth is removed, but it will also heal if the inside of the tooth is properly cleaned and sealed."

Both presentations are completed in the same way: "In order to retain the tooth, one to four (as the case may be) relatively painless appointments may be required. First, the pulp tissue will be removed from its canal in the root, and then the interior of the tooth will be cleaned with instruments that act like small scrub brushes. Once all the debris, bacteria, and pulp are removed, the root is packed

with an inert material that seals the tip and prevents any further damage."

"The tooth has been weakened by the irritants that damaged the pulp, and some tooth structure must be removed to perform the necessary treatment. Therefore, after this work is completed, a large filling or crown is placed to protect the tooth. The properly treated pulpless tooth may function as normally as any other tooth, hold a bridge or partial denture, and last for many years. In your case it is to your advantage to save the tooth in this way."

Visual aids may be included, such as radiographs, models, or pictures of successful cases or the parts of a tooth. Certain slight deviations may be made to include pertinent clinical symptoms present, such as sensitivity to temperature changes, chronic draining sinus, or swelling. When treating a tooth with a periapical radiolucency, the dentist should emphasize that no anesthetic will be required—a big plus with many patients who dislike injections.

The pamphlets produced by the ADA and the AAE on endodontics may be given to the patient in addition to or instead of portions of the case presentation. Most of the possibilities for treatment are explained and illustrated in the booklet in a logical and clear manner.

Typical Questions and Simple Answers

After a case presentation for endodontics, the patient may have questions about therapy. Questions typically asked and simple but direct answers follow.

"Will my tooth discolor?" Discoloration typically seen associated with "dead" teeth is due to hemorrhage of the blood vessels in the pulp after an injury or from a cement within the tooth that stains. If your tooth is not discolored now, it will probably not darken. If it is discolored, an improvement will occur during treatment, or the tooth may be "capped" to give it a normal appearance.

"Why can't the work be finished in one long appointment rather than three or four shorter ones?" Time is usually necessary between appointments to allow medications placed within the tooth to kill bacteria and soothe the irritated tissue around the tooth.

"Is the treatment very painful?" Rarely is any pain felt during the appointments, except when the patient has severe pain at the outset. When needed, local anesthetic is used. Often the treated tooth is slightly tender to touch for 1 or 2 days after each appointment.

"What do you use to remove the pulp?" A small instrument that resembles a fishhook is used to engage the pulp tissue and remove it from the tooth.

"Is a pulp necessary in a tooth?" After the root of a tooth has reached full length and width, the pulp need not be present. In certain cases the root will continue to full growth even without the pulp.

"Why do you need to give me an injection because you removed the nerve last appointment?" Some shreds of pulp tissue may remain that are sensitive. Even if the entire pulp has been removed, the tissues around the roots of the tooth have nerve tissue intact and may be irritable from the previous treatment.

"Could my other teeth that were extracted have been saved by endodontics?" Many excellent advances have been made in endodontics recently, making possible the retention of teeth that were formerly extracted. Even so, not all teeth are amenable to endodontic treatment, and treatment is not successful in every case.

"Why does the treatment cost so much more than ordinary fillings?" The work that is needed may be difficult and is time consuming because much of the removal of irritants and cleaning of the tooth interior are performed mainly with instruments by hand rather than with the drill. If the tooth is retained, the total fee for this endodontic therapy plus the filling (or crown) will be less than the fee for replacing the tooth with a fixed partial denture. In addition, and even more important, a tooth will be saved.

"Is this work surgery?" In most cases, endodontic treatment is performed through the tooth and is not considered surgery, as such. In some cases, if the abscess or area of irritation does not heal properly, surgery may be needed. Under a local anesthetic the tissues at the tip of the root are painlessly removed to retain the tooth.

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