

Implant therapy versus endodontic therapy

Not many years ago, when a tooth had questionable strength characteristics and was not vital, the standard of care was endodontic therapy, usually followed by placement of a post and core and a crown. Extraction of the questionable tooth was considered the last resort, unless the patient did not have the financial resources to pay for the endodontic and restorative therapy. When extraction was necessary, a fixed prosthesis replacing the missing tooth and connecting to the adjacent teeth was considered the treatment of choice.

Times certainly have changed. Now, when a tooth has questionable strength and is not vital, the dentist and patient must make a choice among three

options: extraction and no replacement; endodontic therapy and the necessary restorative dentistry; or extraction of the tooth, placement of an implant and the required restorative therapy.

I write this column from my perspective as an experienced prosthodontist who has accomplished many surgical implant placements and conventional endodontic therapeutic procedures. This column expresses my own opinions and observations on the question of whether a questionable tooth should be extracted and replaced with an implant and implant-supported crown, or whether conventional endodontic and restorative therapy should be accomplished. I will consider many factors relative to this question, then pre-

sent my own observations and conclusions.

CHOOSING BETWEEN IMPLANT AND ENDODONTIC THERAPY: WHAT TO CONSIDER

Informed consent. With patients considering endodontic therapy or implant placement, the dentist should perform a complete informed-consent protocol,¹⁻⁵ which includes a discussion of alternatives for care, the advantages and disadvantages of each, the risks involved in each, the costs of each and what will happen if nothing is done. The factors discussed in the remainder of this column should be included in the informed consent discussion. The patient's input regarding the decision is important, since the cost of the therapy and the potential eventual outcome of the treatment can vary significantly.

Cost. The cost of each of

Gordon J. Christensen, DDS, MSD, PhD

the therapies varies widely. The table shows mean fees (as recently reported in the American Dental Association 2005 Survey of Dental Fees⁶) charged by U.S. general dentists for the replacement of a single tooth using each of the treatment choices, using codes from CDT-2005.⁷

Using mean U.S. fees as a guide, the implant-supported alternative can be nearly twice as expensive as the endodontic alternative. Although affluent patients may not consider the differences in fees shown in the table to be significant, most patients with typical incomes likely would consider the fee for the endodontic alternative to be more favorable than that for the implant choice. People with inadequate financial resources likely would choose to have the tooth extracted. Therefore, the cost of the therapy may influence their treatment choice inordinately.

Coronal breakdown of the involved tooth. Evaluation of the condition of the tooth in question and of the potential for success requires clinical judgment. If the chance of success of endodontic therapy is questionable, extraction of the tooth may be a better alternative than leaving the tooth in the mouth. If at least one-half of the coronal tooth structure is remaining and the root canal anatomy does not present an atypical appearance, endodontic therapy probably is the best choice.⁸ A candid discussion of the possibility for endodontic therapy success should be held with the patient before making

a decision.

Type of bone supporting the questionable tooth. Usually, the best chance for implant success is in the mandible or the premolar and anterior portions of the maxilla. The posterior maxilla usually has poor bone density and, therefore, a reduced chance of implant success. A tooth in the posterior maxilla with a reasonable chance of endodontic success should be retained, since successful placement and long-term service of implants are less likely in the posterior maxilla than in other parts of the mouth. Any area with questionable or abnormal bone density or the presence of potentially problematic anatomical structures should persuade practitioners to retain teeth and choose the endodontic alternative.

Is the tooth to support a single crown or a fixed prosthesis? If the tooth in question is planned to retain a single-tooth restoration, strength

requirements are lower than those for a tooth planned to support a fixed prosthesis. For optimum longevity expectations, highly questionable nonvital teeth that are planned to provide support to fixed prostheses probably should be replaced with implants.

Occlusion. Practitioners know well that a significant percentage of the population experiences bruxism or clenching.⁹ Teeth in these patients are required to resist enormous chewing forces. In such situations, teeth that have a questionable prognosis for success of endodontic and restorative therapy probably should be removed. However, in bruxers and clencher, tooth replacement with implants and crowns also has questionable clinical success potential, because of the extreme forces placed on the teeth in such patients.

If it is elected to remove a tooth and place an implant in a bruxer or clencher, the dentist should consider occlusal equili-

TABLE

Mean fees charged by U.S. general practitioners* for replacement of one tooth using each of the treatment alternatives.†

TREATMENT ALTERNATIVE	PROCEDURE CODE‡	COST (\$)	TOTAL COST (\$)
Implant Therapy			
Extraction	D7111, D7140, D7210, D7250	85-196	
Implant placement	D6010	1,443	
Implant abutment	D6056, D6057	493-644	
Porcelain-fused-to-metal (PFM) crown	D2752	777	
TOTAL			2,798-3,060
Endodontic Therapy			
Endodontic therapy, depending on number of canals	D3310, D3320, D3330	507-736	
Post and core	D2950, D2954	184-228	
Crown PFM	D2752	777	
TOTAL			1,468-1,741

* Random sample.

† Source: American Dental Association.⁶

‡ Source: American Dental Association.⁷

bration, followed by placement of a postoperative occlusal splint for nighttime wear to reduce the expected occlusal trauma to the implant and restoration.

Periodontal condition. One of my pet peeves is being asked to treat patients who have received implants and who also have periodontally treated teeth with mobility classifications of 1+ to 2 (on the 0-to-3 scale). In such cases, the teeth move significantly under occlusal stress, while the implants move only slightly during chewing. Long-term acceptability of the restorative/prosthetic therapy is extremely questionable.

The negative restorative considerations related to the differences between the stability of implants and mobile periodontally treated teeth should indicate retention of questionable nonvital teeth, if at all possible. Teeth in such patients often do not have to support extreme forces. Teeth that may not be strong enough to survive in the mouths of clenchers or bruxers may have adequate strength to serve in periodontally treated patients.

Patients' perception of treatment. Many patients fear both endodontic therapy and even the mere thought of surgery. The dentist should describe candidly the potential discomfort to be expected with each type of therapy to ensure that the patient understands what to expect during treatment.

Patients' perception of the psychological and physiological trauma related to each therapy may be one of the key factors in their decision.

Overall health. Many factors—such as smoking, poor systemic health and major sys-

temic diseases—may contraindicate the placement of implants. Similarly, some of these factors may influence the potential success of endodontic therapy. Patients should be advised of these negative factors in relation to their planned therapy.

Overall health must be considered in any decision between implants or endodontic therapy. It has been my observation that on the basis of overall health characteristics, endodontic therapy may be indicated over implant surgery in some cases.

Time needed for treatment. Although some implant placement situations allow immediate loading with the restoration, many implant situations require several months for adequate osseointegration to

Patients' perception of the psychological and physiological trauma related to each therapy may be one of the key factors in their decision.

occur before the restoration can be placed.

If the dentist anticipates a major difference between the two types of therapies in terms of the time required to complete them, patients should be encouraged to express their opinions related to selection of one or the other treatment on that basis.

The practitioner's proficiency. Practitioners have differing degrees of expertise in the various areas of dentistry. Unfortunately, many patients do not want to be referred to other practitioners for a portion

of their treatment. In such cases, general dentists should advise the patient about the expected potential for success for each of the therapies if they were to accomplish the treatment themselves without referral to specialists.

If the patient feels that because of the clinical expertise of the practitioner, one or the other therapy has the greatest chance for success, that therapy is the one to choose in that situation.

Potential esthetic result. Sometimes implant/restorative therapy can be accomplished with the expectation of adequate or even excellent esthetic acceptability, while other clinical situations appear to be difficult with regard to esthetic acceptability using implants and implant-supported crowns. When the potential for esthetic acceptability appears to be questionable if implants and restorative therapy are used, retention of the affected tooth may be a better choice.

Overall postoperative expectations. When all of the preceding characteristics are considered and weighed together, experienced practitioners can estimate the overall potential for success of either implant/restorative or endodontic/restorative therapy, and they can arrive at an educated prognosis. Consideration of any one factor alone may lead to an illogical conclusion about the best therapy.

All of the factors discussed above must be considered to make a valid conclusion about whether to extract a tooth, place an implant and restore it, or accomplish endodontic therapy and the required restorative therapy.

Downloaded from jada.ada.org on November 14, 2009

SUMMARY

The decision to accomplish endodontic therapy and restore a tooth or to extract it was a relatively easy decision in the past. However, in 2006, a complicating factor is present: the observable success of dental implant therapy. Many factors discussed in this article relate to whether a tooth should be retained, treated endodontically and restored, or replaced with

an implant and an implant-supported restoration. ■

Dr. Christensen is the director, Practical Clinical Courses, and co-founder and senior consultant, CRA Foundation, 3707 N. Canyon Road, Suite 3D, Provo, Utah 84604. Address reprint requests to Dr. Christensen.

The views expressed are those of the author and do not necessarily reflect the opinions or official policies of the American Dental Association.

1. Christensen GJ. Informing patients about treatment alternatives. *JADA* 1999;130(5):730-2.
2. Pollack BR. Risk management in the dental office. *Dent Clin North Am*

1985;29(3):557-80.

3. Sippy RE. Informed consent: why you need more than a signature. *Dent Assist* 2006;75(2):28, 30-1.

4. Dower JS Jr, Indresano AT, Peltier B. More about informed consent (letter). *JADA* 2006;137(4):438-9.

5. Graskemper JP. Informed consent: a stepping stone in risk management. *Compend Contin Educ Dent* 2005;26(4):286, 288-90.

6. American Dental Association. 2005 survey of dental fees. Chicago: American Dental Association; 2006:13-30.

7. American Dental Association. CDT-2005: Current dental terminology. 5th ed. Chicago: American Dental Association; 2004.

8. Christensen GJ. Post concepts are changing. *JADA* 2004;135(9):1308-10.

9. Christensen GJ. Treating bruxism and clenching. *JADA* 2000;131(2):83-5.