

Review Article

Teeth Versus Implants in Periodontal Patients

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Received: 02-07-2013

Revised: 24-09-2013

Accepted: 28-10-2013

Abstract:

Implant-supported restorations have become the most popular therapeutic option for professionals and patients for the treatment of total and partial edentulism. Implants may be considered a better therapeutic alternative than performing more extensive conservative procedures in an attempt to save or maintain a compromised tooth. Inadequate indication for tooth extraction has resulted in the sacrifice of many sound savable teeth. Numerous factors need to be considered when deciding whether to save or extract a tooth are: restorability, disease susceptibility, papillary and gingival considerations, tooth esthetics, etc. The decision to extract or maintain teeth must include deliberation with regard to benefits v/s risks of retaining compromised teeth. The decision to decide when to make the transition from periodontal treatment and maintenance to implant treatment is a complex; however the dental research has not yet provided definitive answers.

Key words: Implants, Periodontal, esthetics.

This article may be cited as: Kapoor S, Kapoor V, Pathak A, Tiwari M, Sikka G. Teeth Versus Implants in Periodontal Patients. J Adv Med Dent Scie 2013;1(2):78-82.

Introduction

God has provided us with a unique and brilliant set of tools with which to chew our food, so that we can survive and thrive. With multi-layered tissues designed to dissipate high forces, complex root shapes and a hydraulic ligament designed to spread the load through the jaw bone, innervations and pressure transducers designed to stop breakage, and its chemical production plant designed to inhibit noxious bacteria and decay; a tooth, like any part of our anatomy,

is truly a thing of beauty.¹ Compare the intricate complexities of a fully formed tooth with an implant. A cylindrical piece of metal machined out of titanium, drilled and screwed straight into the jaw-bone, nothing more than a raw plug having no comparison. Treatment planning in periodontics is undergoing a paradigm shift.² Periodontal treatment in adults that suffer from chronic periodontal disease should be aimed at maintaining a healthy, functional and

aesthetic dentition as far as possible. It is desirable both physiologically and psychologically to maintain the patient's own natural teeth to function throughout their life.³ Good quality non-surgical and surgical treatment should be attempted first where possible. However, where teeth are not treatable, dental implants may be one replacement option.⁴ The decision as to when to make the transition from periodontal treatment and maintenance to implant treatment is a complex one, however the dental research has not yet provided definitive answers. This article provides guidelines for considering extraction and implant placement or tooth-preservation procedures which should be weighed up carefully before making any final decision.

Patient selection: Periodontal practice should be based on current clinical concepts emanating from science-based dentistry. Nonetheless, there are some factors having critical importance in the design of the treatment plan. These variables include patient expectations, finances, compliance, and esthetics.⁵ These factors are included in the first level of our decision making chart. The expectations of the patient have to be clearly identified and included as the main determinant in the decision-making process. For example, if a tooth is indicated for extraction after the initial clinical examination, but the patient shows a strong desire to save it, the option of keeping the tooth should be respected, although the patient should be made aware of the possible consequences and potential risks associated with this decision. Patients look for high-quality esthetic results, regardless of what kind of dental treatment is provided.⁶ The patient demand treatment that includes proper function, health, treatment outcome stability, as well as appealing esthetics. In this sense, the smile is probably one of the most defining features of an individual if

esthetics are not involved, the decision whether to conserve or extract a tooth becomes less critical; however, if saving a tooth implies keeping one with unsatisfactory esthetic conditions (long, discolored tooth) or the possibility that it may compromise future prosthetic esthetics, proceeding with caution is recommended, given our ability as clinicians to improve some esthetic problems related to natural teeth.⁷ The individual's financial status plays an important role in deciding the final dental treatment that one receives. Traditional restorative procedures or implant-supported restorations are usually more expensive than maintaining a tooth. Patient compliance is also one of the determinal factor for decision. Motivating patients to maintain the required degrees of oral hygiene is still one of the great challenges in modern dentistry. Patients unable or unwilling to maintain their oral hygiene when they have natural teeth present are unlikely to consistently improve their oral hygiene habits in the presence of implants.⁶ Implants are as susceptible to peri-implant inflammation and tissue breakdown as teeth.⁸ The transition to implants in these patients is unlikely to meet with great long-term success if plaque-induced inflammation cannot be controlled. Implant integration failures and long-term bone loss are higher in patients with uncontrolled periodontal disease around remaining teeth. In patients with good oral hygiene and regular attendance the following should be considered as reasons to replace teeth:

Individual teeth where periodontal treatment and regeneration techniques are impossible:

Periodontal Disease Severity Nevertheless, the severity of a periodontal problem is such that tooth extraction should be considered one of the treatment modalities to resolve the problem. This can be accessed through probing depths,⁹ furcation involvement,¹⁰

type of defect,⁷ bone loss, mobility. These might include deeper pockets with complex anatomy e.g furcations; deep infrabony defects which are showing progressive attachment loss and symptoms. Clinically this may be seen as increasing bone loss on radiographs, increasing mobility or fremitus in function, or progression to a perio/endo lesion.^{7,8} Be aware that in cases where there has already been periodontal bone loss, grafting techniques may be required to allow implant placement later.

Posterior bite collapse with loss of posterior teeth or loss of anterior guidance through migration of incisors and canines:

In such cases implants can provide a solid occlusal platform and guidance mechanism. Timing in these cases is important but difficult. Periodontal splinting after therapy is usually a first line of treatment in such cases but medium to long-term instability might call for replacement of the posterior teeth to maintain a stable occlusal scheme.

Extensive bone loss throughout the whole dentition requiring a clearance:

This may be seen in cases of advanced or aggressive periodontitis or long-term neglect. In young adult patients showing extensive bone loss early, specialist-level comprehensive periodontal treatment should be attempted first. Refractory cases pose a difficult decision where clearance and hence elimination of the pocket flora coupled with maintenance of remaining bone for future implants may be the correct early treatment in extreme cases. However it should also be remembered that all implants and especially their superstructures do not last for ever.¹⁰

The last level analyzes other factors that may play a significant role in tooth maintenance and prognosis or implant placement: smoking habits,¹¹ presence of certain uncontrolled systemic conditions, the use of bisphosphonates¹² (one of the most

discussed topics in implant dentistry), and the clinician's experience.

Factors considered for extraction:

1. Teeth with a crown/root ratio that is greater than 1:1 should be considered extraction.
2. Teeth that are Class II mobile or greater should be considered for extraction if they can not be treated predictably with equilibration or splinting.⁷
3. Bone loss on questionable teeth that jeopardizes the support of adjacent teeth should be considered for extraction.¹³
4. Teeth with a guarded periodontal prognosis or worse, need crown lengthening surgery for ferule that may alter esthetics, or the support of the adjacent should be considered for extraction.
5. Teeth with a guarded or poor endodontic prognosis due to the size of an apical lesion, need for a large post and core for support, or lack of ferule should be considered for extraction.²
6. Teeth adjacent to edentulous spaces that require several procedures to save and may be in a beneficial place for dental implants should be extracted due to the strategic nature of its position, and potential benefit to the restoration. (Figure 1)

The following is a list of when to consider saving the tooth: (Figure 1)

1. When endodontic treatment (if necessary) can be performed and the tooth can be sealed with a well-fitting single-tooth restoration with adequate ferrule.
2. When the vertical osseous defects can be grafted predictably.
3. When the patient is psychologically motivated to keep his or her teeth and has been informed of the various options.
4. When the patient has very good compliance and performs good oral hygiene.

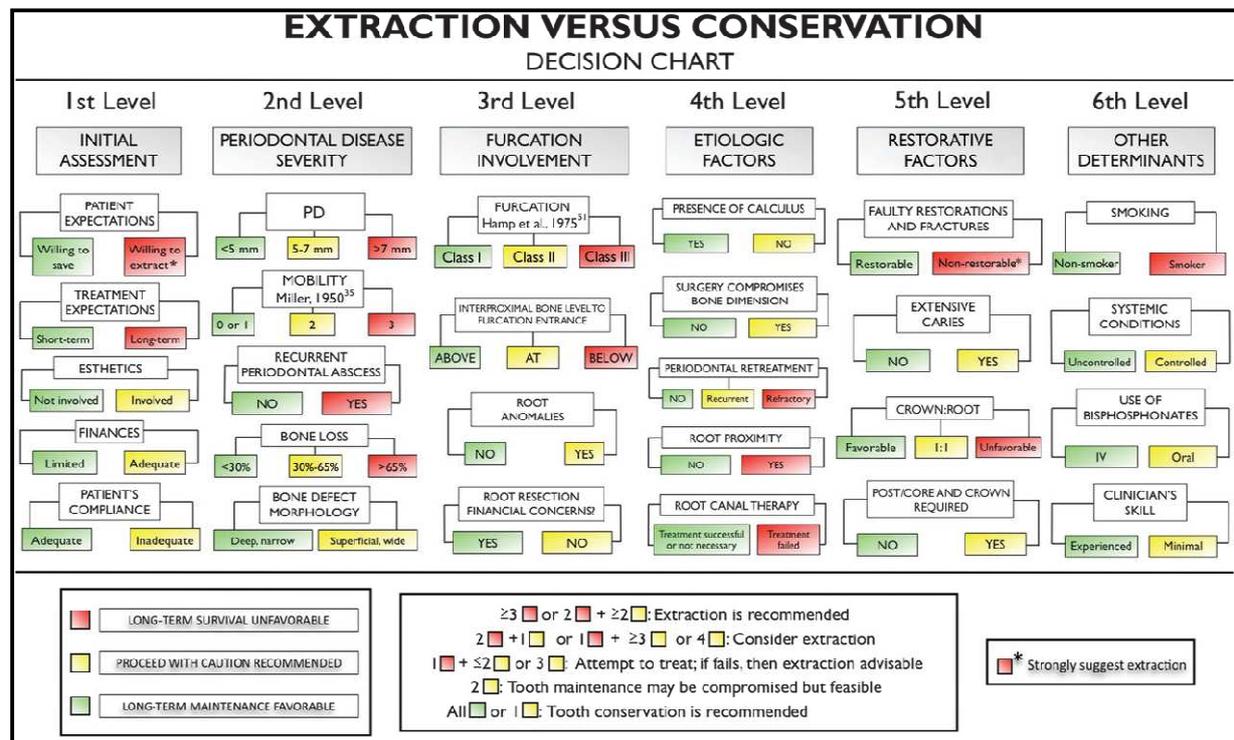


Figure 1: Representing decision chart showing extraction versus conservation.

Rules of thumb:

- One should consider referral for a specialist opinion on options for periodontal therapy unless
- It is very clear that it will not be effective. The patient should also understand the implications of this and you should document these discussions and agreements.
- An implant is not a substitute for a tooth. It is a substitute for NO tooth.
- Prefer teeth over implants unless time and cost of maintenance is prohibitive and function, stability and aesthetics deteriorate despite good.

Conclusion

It is important to keep in mind that maintenance of the natural dentition in high function and acceptable esthetics remain the primary goals of any periodontal therapy. Prosthetic restorations cannot compete with a natural tooth with regard to the physical, biomechanical, and sensorial properties. The retention of a restored or periodontally compromised tooth, as opposed to tooth extraction and subsequent prosthetic replacement, is one of the most difficult and multifactor-dependent decisions that dental professionals must make. The experience and clinical criteria, along with the common sense of the professional, are still the most important tools available to be used as a guide in deciding whether to extract or retain a tooth.

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Source of support: Nil

Conflict of interest: None declared