LANGLEY ENDODONTICS

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Fall 2010

Outcome Comparisons between Implants and Endodontically Treated Teeth

Implants and endodontics are both highly predictable procedures. It is difficult however, to make objective comparisons between the procedures because the factors associated with success and failures are different. For example, the majority of endodontic outcome studies use complete bony healing and absence of symptoms as their criteria for success while often implant success is solely determined by implant survival.

Endodontic failure is generally the result of infection. Most often this occurs at the initial treatment when bacterial biofilms are inadequately removed (missed anatomy), poorly entombed (porous root filling), or insufficiently protected from coronal recontamination (deficient coronal seal). Less frequently is endodontic failure resulting from recurrent caries or fracture at a later time period.

Early implant failures are generally the result of inadequate osseointegration attributed to the formation of a connective tissue interface between the bone and implant. This is often related to surgical technique or bone quality. Late implant failures are usually related to biomechanical factors such as excessive occlusal loading or peri-implantitis resulting in incremental loss of integration and increased mobility.

With this type of disparity between the two procedures, how does the clinician determine which treatment is most appropriate and what evidence can be called upon to educate the patient thus satisfying the requisites of informed consent? Tooth or implant survival over time may be the best and most understandable way for patients and doctors alike to discriminate between treatment modalities.

Hannahan and Eleazar, JOE November '08, retrospectively compared implant and endodontic survival outcomes. Implants were placed by a periodontist and root canal treatments by an endodontist. Patients were recalled at time periods of no less than 12 months. All restorative treatment was done by the general dentist. Failure was determined by removal of the implant or tooth.

129 implants were evaluated at an average of 36 months (range 15-57 months). Only two were lost with a survival rate of 98.4%. 143 endodontically treated teeth were recalled at an average of 22 months (range 18-59 months). Of the endodontic treatments, only one was lost for a survival of 99.3%. The difference was not significant. 14 implants and 13 root treated teeth were graded as uncertain, again not statistically significant. When uncertain cases were removed from the sample, success rates declined to 87.6% for implants and 90.2% for endodontically treated teeth, the difference insignificant.

What was statistically significant however was the observation that 12.4% of the implants required a further procedure such as connective tissue grafting, while only 1.4% of the root canal treated teeth needed further intervention in the time periods involved.

This preliminary study is one of the first of its kind comparing survival of implants and endodontically treated teeth and part of a larger, ongoing study. The findings are limited by the relatively small sample sizes and array of confounding factors such as contributory medical history findings.

The major point that we can take home as clinicians, is that with the information we have today, there is little to choose from as far as survivability is concerned between implants and endodontics. Other factors become therefore more important in the decision tree such as esthetics, biomechanics, cost, and patient desire.

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