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Clinical Paper

American Association of Oral and Maxillofacial Surgeons

Statement by the American Association of Oral and Maxillofacial Surgeons Concerning the Management of Selected Clinical Conditions and Associated Clinical Procedures

Bone Grafting After Removal of Impacted Third Molars

Section 1: Parameters of Care as the Basis for Clinical Practice

Introduction

This statement is intended to summarize the procedures used in the management of patients presenting for care by oral and maxillofacial surgeons. The definitive guide to the management of such patients is *Parameters of Care: AAOMS Clinical Practice Guidelines for Oral and Maxillofacial Surgery (AAOMS ParCare) Sixth Edition 2017*. Any references used in the development of this statement can be found in *AAOMS ParCare 2017*. This statement is not intended as a substitute for *AAOMS ParCare 2017*, but rather as a synopsis of the information contained in *AAOMS ParCare 2017*.

Section 2: Bone Grafting After Removal of Impacted Third Molar Teeth

Preface

Bone grafting after removal of impacted third molar teeth is a controversial subject with regard to efficacy, definition of defect and appropriate patient population. The focus of this paper is to discuss the situations that might be more likely to benefit from bone grafting procedures.

Indications

AAOMS ParCare 2017 addresses the indications for therapy for deformities and defects of the alveolar complex. In the instance of a third molar extraction site, the indications for therapy would be a significant osseous or soft-tissue defect. This defect might result in a situation where the second molar is unstable, has increased likelihood of periodontal disease or in which there is chronic infection and/or pain.[1]

According to the *White Paper on Third Molar Data*, the clinical question is: "Among subjects undergoing mandibular third molar removal, does an intervention at the time of tooth removal, when compared to no intervention, improve the long-term periodontal health on the distal aspect of the adjacent second molar?"[2]

Predictors of Postoperative Bony Defects/ Patient Selection

In a split-mouth study design of 25 patients, there was a significant improvement in the periodontal condition of second molars when the third molar was extracted versus the control side when no extraction was performed.[3] Routine adjunctive measures, such as bone grafts, in addition to extraction of third molars to improve the periodontal conditions of the second molars, however, is not indicated for all subjects. High-risk patients may demonstrate the following predictive factors: 1) Age at time of removal; 2) size of preoperative defect (attachment loss 3mm or probing depths 5mm); 3) size of contact area between the second and third molars; 4) root resorption of the second molar; 5) pathological follicle associated with the third molar; 6) horizontal or mesioangular impaction.[4,5] In respect to patient age, not only do patients under 26 years of age have fewer and less severe defects than older patients, but defects in the younger group improve over long periods of time. One study indicated that this improvement was seen as late as four years after third molar removal.[6]

Treatment

Treatment may involve immediate grafting utilizing autogenous bone, freeze-dried bone, bioactive ceramics and/or membranes (resorbable or nonresorbable). Delayed grafting could utilize the same modalities. In instances where a permanent defect is predicted, earlier intervention is warranted. However, it seems prudent to delay treatment in patients under 26 years of age. Periodic follow-up in all marginal cases gives reasonable opportunity for the clinician to adequately evaluate the defect and allow possible resolution without intervention.

Summary

Routine bone grafting of third molar extraction sites is not indicated in all patients; however, there is a growing body of evidence supporting that high-risk patients – such as age 26 and older with deep horizontal impactions of their third molars – may benefit from additional interventions. Current literature – although some having strong prospective, split-mouth designs – generally lack patient size and require longer follow-up.

References:

1. Parameters of Care: AAOMS Clinical Practice Guidelines for Oral and Maxillofacial Surgery (AAOMS ParCare) Sixth Edition 2017, AAOMS, Rosemont, IL.

2. "White Paper on Third Molar Data." American Association of Oral and Maxillofacial Surgeons. March, 2017.

3. Krausz et. al. Effects of lower third molar extraction on attachment level and alveolar bone height of the adjacent second molar. Int J Oral and Maxillofac Surg. 2005:34:756-760.

4. Dodson, Thomas. Third Molar Socket Grafting: Is There an Indication? Symposium On Alveolar Grafting/ Ridge Preservation. American Association of Oral and Maxillofacial Surgeons: Oct 6, 2006.

5. "The Influence of Anatomical, Pathophysiological and Other Factors on Periodontal Healing After Impacted Lower Third Molar Surgery: A Multiple Regression Analysis." Kugelberg, C.F.; Ahlstrom, U.; Ericson, S.; Hugoson, A.; Thilander, H. Journal of Clinical Periodontology, Volume 18, 37-43, 1991.

6. "Periodontal Healing Two and Four Years After Impacted Third Molar Surgery: A Comparative Retrospective Study" Kugelberg, C.F. International Journal of Oral and Maxillofacial Sugery, Volume 19, 341-345, 1990.