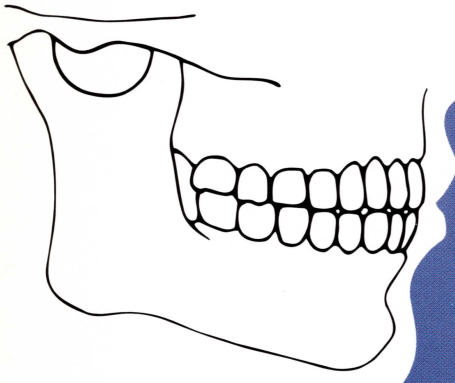
A Peer-Reviewed Journal

Compendium

of Continuing Education in Dentistry®

An MWC Publication

Vol. XVII, No. 3 March 1996/$8.50



Special Issue

Periodontal Prosthetics & Occlusion

CE[1] Understanding Occlusion and the TMJ—The Fourth Molar Paradigm

CE[2] The Regeneration of Soft Tissue and Bone Around Implants

CE[3] Periodontal and Restorative Considerations of Molar Uprighting

Special Features

Verifying the Accuracy of Soldered Prostheses

Chairside

Insurance Reimbursement Matters

Oral Medicine

PRODUCT NEWS

36 CE Credit Hours Per Year

University of Pennsylvania

Compendium Vol. XVII, No. 3 pp 217-312 March 1996

A Peer-Reviewed Journal

Compendium

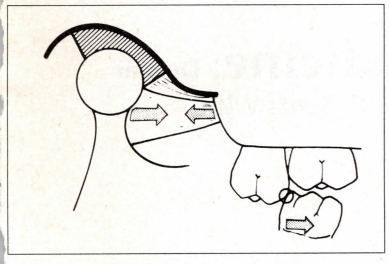
March 1996 Vol. XVII, No. 3

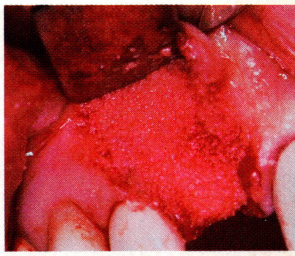
The University of Pennsylvania School of Dental Medicine has accredited each review article in this Compendium *for 1 Continuing Education Unit (CEU) or 1 contact hour. For more information on CE course enrollment, contact the Circulation Department, Dental Learning Systems Co., Inc., CN 505, Jamesburg, NJ 08831, or call (908) 656-1143.*

CE Continuing Education Articles

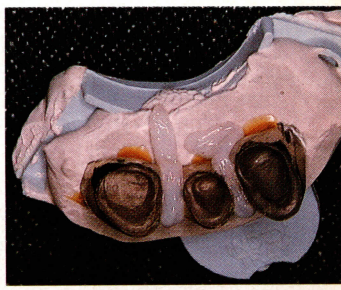
Periodontal Prosthetics & Occlusion

Guest Editor: Dr. Frank V. Celenza





Not-For-Credit Articles



As a matter of policy, *The Compendium* does not place ads adjacent to other ads or editorial that relates to the same or similar subject. However, we must occasionally deviate from this policy because of an unusual volume of advertising or editorial material on a particular topic.

A Peer-Reviewed Journal
Compendium
March 1996 Vol. XVII, No. 3

Special Features

CE Information

Accreditation

The Compendium now offers 36 Continuing Education (CE) credit hours per year. To register, call (908) 656-1143.

Each clinical article is accredited by the University of Pennsylvania School of Dental Medicine for 1 hour of credit. Participants are urged to contact their state registry boards for special CE requirements.

A 10-question, multiple-choice test follows each CE article. To receive credit, complete and return the answer sheet for processing. The deadline for submission of quizzes is 3 months after the date of publication. Answers will be printed four issues after the date of publication.

Participants must attain a score of 70% on each quiz to receive credit. Participants receive an annual report documenting their accumulated credits. Enrollees in the 1-year program will receive a certificate from the University of Pennsylvania School of Dental Medicine after submitting quiz answers from 12 *consecutive* issues.

Academy of General Dentistry
Nationally Approved Sponsor
FAGD/MAGD Credit

ADA Recognized Provider
Continuing Education Program

Quiz Answers—November 1995

Article 1: *Dr. Summers*
The Osteotome Technique: Part 4—Future Site Development
1. a 2. e 3. d 4. c 5. b 6. d 7. e 8. b 9. a 10. c

Article 2: *Dr. van der Bijl*
Injection Needles for Dental Local Anesthesia
1. b 2. e 3. a 4. d 5. a 6. c 7. c 8. c 9. b 10. d

Article 3: *Dr. Counts*
Orthodontic Movement Through a Repaired Buccal Alveolar Fracture: A Case Report
1. c 2. c 3. a 4. b 5. e 6. d 7. e 8. e 9. d 10. d

Quiz Deadline Schedule

To receive CE credits, you must submit your quizzes within 3 months (90 days) after publication. Answers are printed 4 months after publication.

CE 3

Periodontal and Restorative Considerations of Molar Uprighting

Frank Celenza Jr, DDS
Assistant Clinical Professor
Department of Postgraduate Implant Fellowship
Department of Postgraduate Orthodontics
Private Practice in Periodontics and Orthodontics

Theodore G. Mantzikos, DMD
Ilan L. Shamus, DDS
Postdoctoral Students
Department of Postgraduate Orthodontics
New York University College of Dentistry
New York, NY

Abstract

The sequelae to the loss of a tooth are both numerous and varied. Furthermore, the ramifications of tooth loss increase in severity with time. Consequently, corrective therapeutic measures can become complex both in the diagnosis and treatment of these situations. As the demand for more predictable treatment results grows, the require ments for more efficacious treatment modalities grow as well. There fore, the need for interdisciplinary treatment within the various are of dentistry to assist in the complex rehabilitation becomes very i portant. The purpose of this article is to examine the various bene of molar uprighting from periodontal, orthodontic, and restora viewpoints, and to suggest a classification whereby the clinician rected toward a multidisciplinary treatment approach.

Learning Objectives

After reading this article the reader should be able to:

- understand the ramifications of nonreplacement of a missing
- understand the benefits of orthodontic repositioning of tipped
- apply a scheme intended to provide the clinician with a guide to the treatment of situations involving molar uprighti
- assess factors that directly affect the decision to upright by m movement or by distal crown tipping.
- consider the concerns associated with postorthodontic stab

The sequelae to the loss of a tooth are both numerous and varied. Furthermore, the ramifications of tooth loss increase in severity with time. Consequently, corrective therapeutic measures can become complex, both in the diagnosis and treatment of these situations. As the demand for more predictable treatment results grows, the requirements for more efficacious treatment modalities grows as well. Therefore, the need for interdisciplinary dental treatment to assist in complex rehabilitation becomes very important. This article examines the varied benefits of molar uprighting from periodontal, orthodontic, and restorative viewpoints, and suggests a classification whereby the clinician is directed toward a multidisciplinary treatment approach.

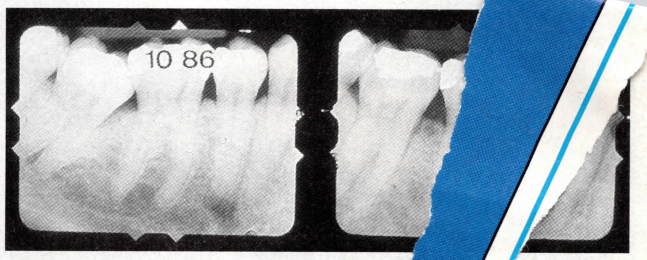


Figure 1—Pre- and postorthodontic rad of the man-dibular right quadrant. The preoperati graph demon-strates molar tipping despite intact de he postopera-tive radiograph shows crestal le a result of re-establishment of proper tooth pos

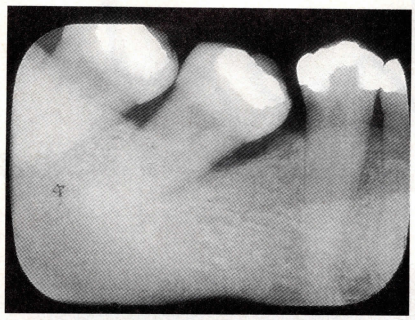


Figure 2A—Radiograph of a mandibular right quadrant with long-standing partial edentulism (missing first molar), showing mesial tipping of the remaining molars, loss of potential pontic space, and the formation of an angular crest on the mesial of the second molar.

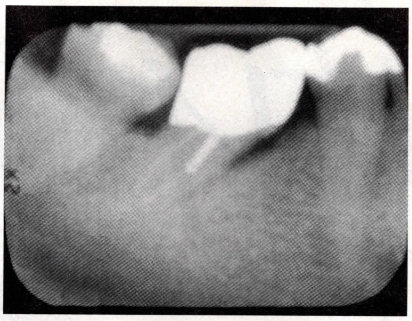


Figure 2B—Postrestorative radiograph of situation depicted in Figure 2A. Although restored, the reparative potential of uprighting has not been exploited. The angular crest remains, and the presence of endodontic treatment suggests a pulpal exposure.

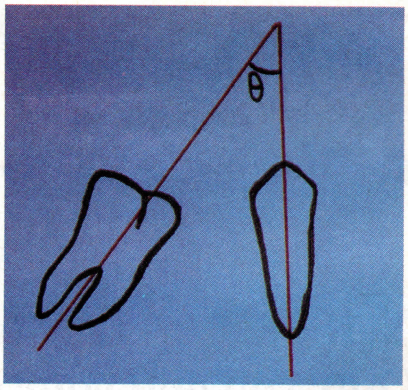


Figure 3—Depiction of long axes, with theta depicting the angle of variation.

Etiology

The etiology of molar collapse is the early loss or nonreplacement of a posterior tooth, either as a result of caries, periodontal disease, agenesis, ectopic eruption, or trauma. Before the age of 30, the predominant cause of tooth loss is caries. Beyond age 30, periodontal disease is the primary cause of tooth loss. Moreover, in cases involving caries, interproximal tooth-structure loss can lead to intra-arch space loss as a result of the shifting and tipping of teeth. Therefore, it is possible for molar tipping to occur without tooth loss (Figure 1). In this radiograph, the second molar has significant mesiolingual angulation despite the fact that there are no missing teeth in this quadrant.

Sequelae

Loss of posterior teeth, usually the first permanent molars, is a problem often encountered in adults. The sequelae to this will depend on many factors, not the least of which are the position and number of teeth lost, age of occurrence (time of the edentulous period), occlusal relationships, and forces placed on the dentition from function or parafunction. The *physiologic occlusion* is defined as one in which the periodontium can withstand the functional demand. In other words, the occlusion is able to maintain its integrity. Conversely, the *pathologic occlusion* is defined as that which is *unable* to withstand the functional demands placed on it, and so it is unable to maintain itself.[1]

When a tooth is lost there is a corresponding loss in arch integrity, and the ensuing changes that can result are numerous. As a result of the muscular forces placed on the remaining teeth, the tendency to tip mesially into the edentulous space is well recognized. This results in changes to occlusal relationships and the morphology of the supporting periodontal structures. Dentitions undergoing such dynamic changes are rarely considered physiologic.

Figure 2A shows the early loss of the mandibular right first molar. The multifaceted nature of the alterations that ensued are apparent. Primarily, there has been dramatic tipping of the remaining second and third molars. Occlusal relationships have been altered, and, as forces are applied at angles increasingly variant from the long axis of the teeth, positional stability decreases, and tipping continues. Periodontal changes in both hard and soft tissues can be observed as well.[2] Whereas it may be possible to restore a tooth without correcting its angulation, the potential to harness the favorable morphologic alterations that can result from using corrective orthodontics are not realized (Figure 2B). Failure to eliminate the angular alveolar crest could become the reason for the eventual failure of the tooth because these angular crests are often accompanied by soft-tissue aberrations—namely, pseudopockets.

Treatment Options

Successful long-term treatment demands the reversal of as many of these untoward sequelae as possible. Orthodontic repositioning of tipped molars has been shown to have beneficial effects on the periodontium. Although connective attachment level along a root surface remains unchanged at best, there are considerable and predictable morphological alterations to crestal bone that accompany tooth uprighting.[3-5] Furthermore, proper abutment alignment and pontic space distribution can be more effectively achieved. Although telescopic prostheses can be used to circumvent parallelism discrepancies, they offer none of the beneficial alterations to the periodontium of molar uprighting.

Molar uprighting can be achieved through various methods. Molar crowns can be driven distally to upright a tooth, which also results in the restoration of a pontic space. This pontic space can be restored by a variety of prosthetic means, including implants. Molar roots can also be dragged mesially during up-

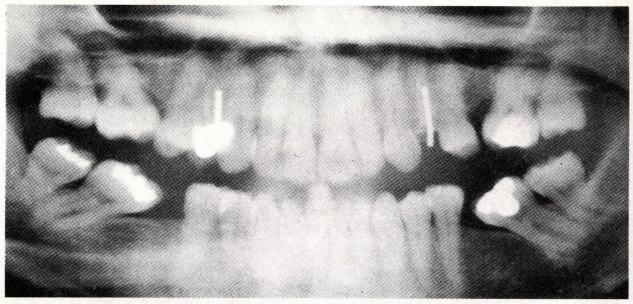


Figure 4A—Preorthodontic panoramic x-ray, showing the absence of first molars in all quadrants. All four quadrants exhibit varying degrees of molar collapse, edentulous space, and angular crest formation.

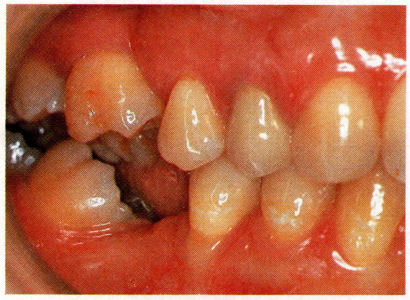


Figure 4B—Buccal view, right side. In the upper right quadrant, note the minimal tip of the second molar crown, and minimal residual space in the missing first molar site. In the lower right quadrant, there is severe molar tipping and rolling of soft tissues on the mesial surface.

Figure 4C—Close-up of right side, preorthodontic radiograph, showing the variation in degrees of molar collapse, residual molar space, and angular-crest formation between the upper and lower quadrants.

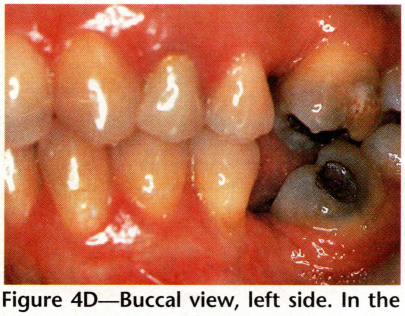


Figure 4D—Buccal view, left side. In the upper left quadrant, note the minimal tip of the second molar crown, and the minimal residual space in the missing first molar site. In the lower left quadrant, there is severe molar tipping and rolling of soft tissues on the mesial surface.

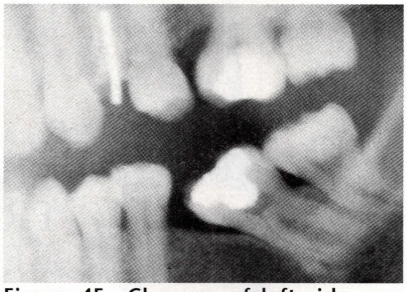


Figure 4E—Close-up of left side preorthodontic radiograph, showing variation in degrees of molar collapse, residual molar space, and angular crest formation between upper and lower quadrants.

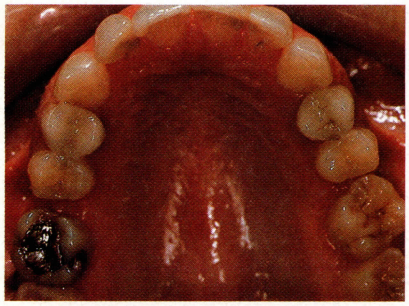


Figure 4F—Clinical view of the preorthodontic maxillary arch.

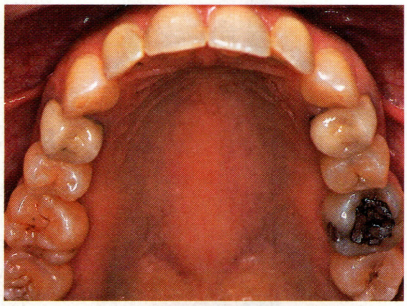


Figure 4G—Postorthodontic view of the maxillary arch, demonstrating space closure and improved molar alignment.

righting to close space, usually obviating the need for prosthetic restoration.

There are various advantages and disadvantages to both of these choices. For example, distal crown movement is the more expeditious route, and is more easily accomplished from a mechanotherapy standpoint. However, it has the drawback of requiring restoration of the resulting pontic space and the side effect of extrusion, which must be controlled. Conversely, mesial root movement requires greater anchorage to be accomplished, as well as a significantly longer time period. Technically, this may be the more challenging of the two choices. Nevertheless, because this technique achieves space closure, the need for prosthetic restoration is usually obviated. Perhaps, most importantly, the morphological alterations and tissue remodeling that occur in concert with distal crown movement are more dramatic than with mesial root movement, and so the elimination of periodontally susceptible defects is more effectively accomplished with distal crown movement.[3,5]

Molar Position Classification

Whether to upright molars by distal crown tipping or by mesial root movement is a crucial decision in the treatment planning of these cases. The authors have devised a scheme to facilitate this decision process. Although exceptions to the guidelines presented do arise, this scheme is intended to provide the clinician with a working guide that can be considered in the diagnosis of situations involving molar uprighting. Factors that directly affect the decision to upright by mesial root movement or by distal crown tipping include the difference in the angulation of the long axes of the teeth measured in the saggital dimension, the mesiodistal length of the edentulous span, and the presence of a mesial angular crest (commonly associated with the tipped tooth). Other factors that can be considered as indirect influences include the necessary

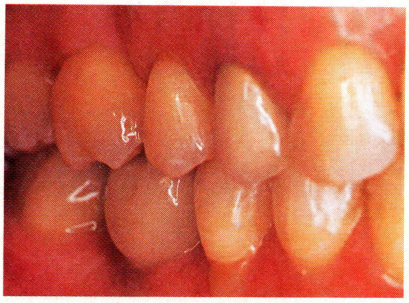


Figure 4H—Posttreatment buccal view of right side, showing space closure on the upper, the restoration of lower second molar position, and first molar replacement by a single-tooth implant. (Restoration by Dr. Jonathan Zamzok, New York, NY.)

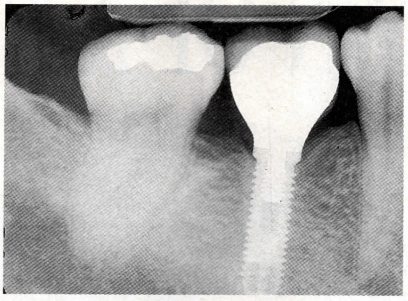


Figure 4I—Posttreament radiograph of the lower right quadrant, showing the placement of a single-tooth implant in restored edentulous space, and the bone crest repair on the mesial of the second molar (compare to Figure 4C). (Implant placement by Dr. Dennis Tarnow, New York, NY.)

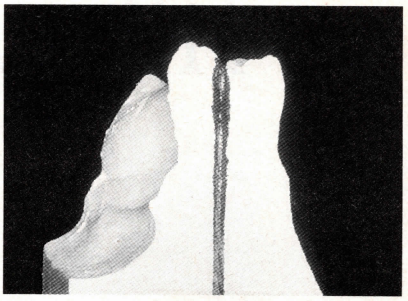


Figure 4J—Frontal view of the study cast, trimmed to the center of the lower left second premolar. The long axis of the second premolar is shown perpendicular to the base of the cast.

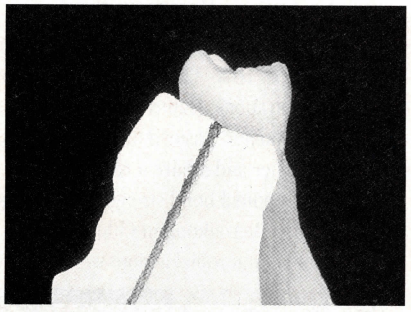


Figure 4K—Rear view of the study cast, trimmed to the center of the second molar. The long axis is depicted as having severe lingual inclination relative to the premolar.

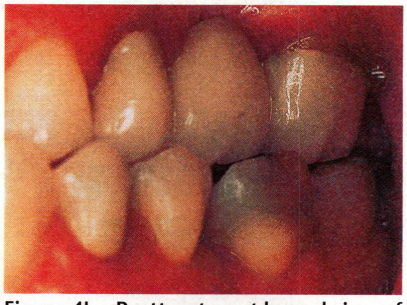


Figure 4L—Posttreatment buccal view of left side. Note space closure on the upper, restoration of the lower second molar space, and restoration with a three-unit bridge. (Restoration by Dr. Jonathan Zamzok, New York, NY.)

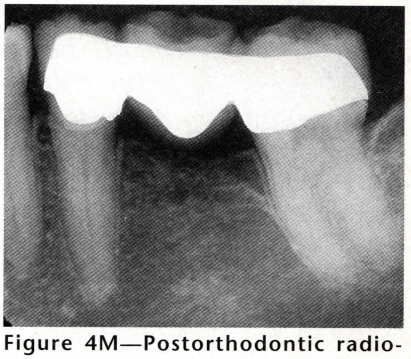


Figure 4M—Postorthodontic radiograph of lower left quadrant, showing the restoration of parallelism to abutment teeth, provision for pontic placement, and dramatic repair to the angular crest (compare to Figure 4E), as well as the elective extraction of the third molar, and restoration with a three-unit bridge. (Restoration by Dr. Jonathan Zamzok, New York, NY.)

mechanotherapy, the estimated time for treatment, the presence or absence of third molars, and the economic implications of the proposed restoration. We will examine each factor individually.

When viewed from the buccal, the long axes of the remaining teeth can be visualized on a radiograph or study cast (Figure 3). The difference in angulation between the teeth on either side of the edentulous span is a crucial consideration. When the variation of this angulation approaches 25 degrees, a critical difference arises. It becomes difficult from a prosthetic standpoint to restore abutments with such a discrepancy in parallelism. Therefore, the first consideration in the scheme is the variation of this *angulation*, as viewed in the sagittal dimension (or mesiodistally). Mesial root movement becomes similarly difficult to achieve with variations in root angulation greater than 25 degrees, and distal crown movement to teeth with less than this amount may not "open up" to provide a sufficient pontic space for restoration. Consequently, the authors suggest that the primary consideration in molar uprighting is the variation in root angulation of the remaining teeth, and in situations where this is less than 25 degrees, they suggest that mesial root movement should be considered. When this variation in angulation is greater than 25 degrees, distal crown tipping should be considered. However, this first factor or determination should not be relied on individually; rather, the following aspects may very well serve to modify any treatment decisions.

The next aspect to be evaluated is the *linear dimension* of the edentulous span. We suggest that 3 mm from the closest points of the teeth that border the edentulous span is a useful guideline. Greater than this amount will make space closure difficult, and less than this can result in insufficient pontic space with distal crown movement. Similarly, this factor must be considered in conjunction with the previous two factors; however, the authors suggest that edentulous spans of less than 3 mm be treated by mesial root movement, and that spans of greater than 3 mm be treated by distal crown movement.

Lastly, the presence of a *mesial*

angular crest is a periodontal consideration that is commonly associated with molar collapse. When present, the leveling of the alveolar crest often can be effectively accomplished with orthodontics,[3-5] and so it is the third factor to be evaluated in this scheme. Wise and Kramer[3] have demonstrated how the changes to the alveolar crest that result from molar uprighting can be predicted. Distal crown movement is generally more effective for correcting these types of abnormalities. Ostensibly, mesial root movement has been shown to potentially increase pocket depth.[6] As the degree of molar collapse increases, the potential periodontal severity of the angular crest that forms generally increases as well.[2] Consequently, when tooth angulation and length of edentulous span are considered together, the use of distal crown movement in more severe situations is usually indicated.

Case Report

A 36-year-old woman presented who had lost all of her first molars earlier in life as a result of carious involvement. All four quadrants exhibited some degree of molar collapse. Other considerations involved in the treatment decisions in this case included the moderate crowding of the lower incisor teeth, and the presence of third molars in all quadrants.

The panographic view shows an overview of the state of the patient's dentition (Figure 4A). The authors examined the case on a quadrant basis to determine its most salient features and to apply the molar position classification. Starting in the upper right quadrant, and applying the classification scheme (Table 1), the difference between angulation of the long axes of the second molar and second bicuspid is less than 25 degrees, the edentulous space measures less than 3 mm across its narrowest point, and radiographically a periodontal angular crest is present (Figures 4B and 4C). This quadrant is therefore classified as a Degree IA + (Table 1). The treatment of choice is to align the long axes of the teeth and upright the molars by mesial root movement to achieve space closure. In the mandibular right quadrant (Figures 4B and 4C), the difference in angulations is greater than 25 degrees, the edentulous span measures more than 3 mm, and there is an angular crest on the mesial surface of the second molar. This, therefore, is a Degree IIB+ situation, which warrants treatment by distal crown movement and subsequent restoration by prosthetic means. Other considerations also enter into the equation regarding the treatment of this quadrant. Most notably, because it will undergo distal crown movement, and because it opposes a quadrant that will be treated by mesial root movement, it is determined that the lower right third molar will occupy a postorthodontic position

Table 1—Molar Position Classification

Angulation

Degree I—Less than 25 degrees variation between the long axes of the remaining teeth.

Degree II—Greater than 25 degrees variation between the long axes of the remaining teeth.

Length of Edentulous Span

Type A: Less than 3 mm

Type B: Greater than 3 mm

Presence of Angular Crest

Yes (+) No (-)

that is unopposed. Consequently, extraction of the mandibular right third molar is also recommended.

The upper left quadrant (Figures 4D and 4E) can be classified as a Degree IA+ and can be treated in the same manner as the upper right quadrant. Because mesial tooth movement will be achieved in these areas, it is advisable to keep the third molars present. Figures 4F and 4G, respectively, show the preoperative and postoperative maxillary arch views.

Lastly, in the mandibular left quadrant (Figures 4D and 4E) abutment angulations are observed to have greater than a 25-degree difference, the edentulous span measures greater than 3 mm, and there is significant angular crest—a Degree IIB+ situation. Treatment is similar to the contralateral mandibular quadrant, including the extraction of the third molar. However, another consideration arises that will affect the prosthetic management of this quadrant. There was a significant lingual inclination to the molar preorthodontically.

As we previously mentioned, the restoration of the edentulous span can be accomplished by a variety of methods, including fixed bridgework, removable partial dentures, and implant-supported restorations. Postorthodontic stabilization is always a concern, and the prosthesis used should be designed so that it will provide for retention of the treatment result. When the study models are viewed from the posterior, the two mandibular quadrants display vastly different lingual inclinations in the molar regions. The lower right molars were reasonably parallel to the bicuspid segment, so no transverse discrepancies were encountered. The use of an implant-supported restoration would suffice as an adequate retainer because it would serve as a suitable space maintainer in the saggital dimension, thereby preventing future molar relapse (Figures 4H and 4I). The lower left quadrant, however, included molars that involved significant lingual collapse in addition to the mesial tipping (Figures 4J and 4K). Treatment of the quadrant necessitated the inclusion of a transverse force application to upright the lower second molar in both the buccal and distal directions. This was accomplished by using a cross-elastic. Consequently, retention of the orthodontic result requires that the molar abutment be stabilized in both the sagittal (mesiodistal) and transverse (buccolingual) dimensions. An implant-borne prosthesis would not normally accomplish this. Therefore, a conventional three-unit bridge was the restoration of choice for this quadrant (Figures 4L and 4M). The patient remains on 3-month recall intervals alternating between the periodontal and restorative offices.

Summary

The ramifications of early tooth loss with regard to molar collapse have been discussed and beneficial therapeutic outcomes have been delineated. A scheme for the classification of these problematic molar relations has been suggested, and the concept has been demonstrated through a case presentation. This scheme has proved useful for the communication and diagnosis of these clinical situations.

References

1. Amsterdam M: Periodontal prosthesis, in Goldman H, Cohen DW (eds): *Periodontal Therapy*. St. Louis, CV Mosby Co, pp 1121-1154, 1980.
2. Ritchey B, Orban B: The crests of the interdental alveolar septa. *J Periodontol* 24:75-87, 1953.
3. Wise RJ, Kramer GM: Predetermination of osseous changes associated with uprighting tipped molars by probing. *Int J Periodontics Restorative Dent* 1:69-81, 1983.
4. Celenza F, Feder G: Morphological alterations of the periodontium resulting from molar uprighting. New York, NY: New York University, 1990. Thesis.
5. Brown IS: The effect of orthodontic therapy on certain types of periodontal defects. I. clinical findings. *J Periodontol* 44: 742-756, 1973.
6. Profitt WR: Adjunctive treatment for adults. In Profitt WR (ed): *Contemporary Orthodontics*, ed 2. St. Louis, CV Mosby Co, p 560, 1993.

So What's The Difference?

The problem with most disposable closed-bite trays is springback distortion, resulting in costly remakes and adjustments. But laboratories across the country agree that there is one system that ensures accurate, distortion-free crowns and bridges—the Occlusal Harmony System from Advantage Dental. It's the only one in the world with a thermoplastic bite wafer to record the opposing bite and strengthen the tray. Just check the difference it makes:

Strength—As the preinserted bite wafer hardens, it locks into the tray walls for stability—totally eliminating distortion.

Accommodates Differences In Anatomy—The auxiliary support bar can be used to accommodate third-molar interference and larger arches.

Less Costly—Due to the presence of the thermoplastic bite wafer, two-thirds less impression material is used—impression material costs are reduced; total impression costs are less.

Centric Occlusion—The Occlusal Harmony System allows for consistent centric occlusion.

Weakness—Walls are held in place with a flimsy bar. Impingement on the bar or walls causes distortion—resulting in costly remakes.

Will Not Accommodate Differences In Anatomy—Other trays cannot even be used when there is posterior interference when the patient bites down.

More Costly—Other trays cost less, but require more impression material—total impression cost is more... the extra costs of remakes, lab fees, and chair time, must be factored in, too.

Lack of Centric Occlusion—With other trays, achieving centric occlusion is inconsistent.

"I've used this innovative device routinely over the last two years and get excellent clinical results. The patient response has also been great."

Ross Nash, DDS
Dentistry Today
July 1992

"This is a fantastic system–superior to any other closed-bite trays. I encourage all our dentists to use it."

Joe Sherer, Owner
Sherer Dental Laboratories

Advantage Dental Products, Inc.

Call 1-800-388-6319

(In TX, LA, MS, AL, OK and CA, call Better Way Dental at 1-800-676-8930)

Circle 59 on Reader Service Card

Quiz 3

This article qualifies for 1 hour of Continuing Education credit from the University of Pennsylvania School of Dental Medicine. Record your answers on the enclosed answer sheet or submit them on a separate sheet of paper.

1. The etiology of molar tipping is often tooth loss caused by:
a. periodontal disease.
b. trauma.
c. caries.
d. agenesis.
e. all of the above

2. A physiologic occlusion is one that:
a. is unable to maintain the functional demands placed on it.
b. is able to maintain its integrity.
c. causes trauma to surrounding periodontium.
d. has no missing teeth.
e. none of the above

3. The pathologic occlusion is defined as that which:
a. is able to maintain itself under the influences of function.
b. is functioning in the presence of periodontal disease.
c. is unable to withstand the stress and demands of function.
d. is subjected to parafunctional forces.
e. causes trauma to surrounding periodontium.

4. Which of the following is usually associated with molar collapse?
a. unaffected alveolar crest
b. increased edentulous space
c. root apices that move mesially
d. crowding of incisors
e. loss of abutment parallelism.

5. The following is true regarding orthodontic anchorage for molar uprighting:
a. Anchorage is not a consideration.
b. Mesial root movement requires greater anchorage to accomplish.
c. Distal root movement requires greater anchorage to accomplish.
d. Distal crown movement does not require anchorage to accomplish.
e. All of the above are correct.

6. When properly implemented, orthodontic uprighting can:
a. improve the periodontal environment.
b. provide for a more favorable restorative environment.
c. restore proper occlusal relationships.
d. be accomplished within a reasonable time period.
e. all of the above

7. All of the following are true except:
a. mesial root movement is an expeditious approach to molar uprighting.
b. distal crown movement results in the restoration of a pontic space.
c. mesial root movement requires greater anchorage to accomplish.
d. distal crown movement levels an angular crest.
e. both types of molar uprighting can achieve tooth parallelism.

8. Factors that directly affect the decision to upright by mesial root movement or by distal crown tipping include:
a. the mesiodistal length of the edentulous span.
b. the difference in angulation of the long axes of the teeth.
c. the presence or absence of a mesial intrabony pocket.
d. all of the above
e. none of the above

9. When restoring the edentulous space created by distal crown movement, all of the following apply except:
a. the restoration can take the form of a fixed prosthesis.
b. the restoration can take the form of an implant-supported prosthesis.
c. the restoration can take the form of a removable partial denture.
d. It is not necessary to restore the edentulous space.
e. none of the above

10. The authors have described a classification of molar uprighting that includes considerations involving:
a. orthodontic factors.
b. periodontal factors.
c. prosthetic factors.
d. all of the above
e. none of the above