Dentoalveolar surgery comprises more than 50% of the practice of oral and maxillofacial surgeons worldwide and is the most commonly performed category of surgical procedure. Optimal strategies for management of many medical problems, however, remain unclear. Remaining current on medical and surgical perioperative strategies is a standard for best practice. This article provides contemporary approaches for the perioperative management of patients presenting for dentoalveolar surgery. Attention will be directed to the perioperative management of cardiovascular disease, diabetes, and obesity. These diseases are chosen owing to controversies with respect to good scientific evidence that supports a standard of perioperative care.

Exodontia services comprise the largest portion of clinical practice for most oral and maxillofacial surgeons in the United States. This article is an overview of the principles of exodontia including the physics principles underlying the appropriate use of dental elevators and forceps. Failure to understand the instrumentation and the physics principles being used can cause prolonged operative time, iatrogenic injury to the patient, and unnecessary fatigue and/or injury to the provider. Advances in materials, technology, and innovative design have produced interesting new instruments for exodontia. New instruments including periotomes, piezosurgery, physics forceps, and vertical extraction systems are introduced and reviewed.

Impacted third molars occur in a significant number of patients and often require treatment because of presence of symptoms and/or disease. Management of these teeth typically involves referral to oral and maxillofacial surgeons for diagnosis, treatment planning, and ultimate removal if indicated. Proper diagnosis and treatment planning helps optimize surgical results at each stage of the procedure, and ultimately patient outcomes. Adherence to proper surgical techniques helps minimize risks and complications associated with the procedure. Multiple alternative surgical techniques also exist for uncommon, but potentially complicated, situations that arise with some impacted third molars.

Impacted incisors, canines, premolars, and second molar are problems encountered frequently by general dentists, orthodontists, and oral and maxillofacial
surgeons. The etiology of impacted teeth is multifactorial. Traditional radiographs can be used for location of the impacted tooth but 3-D CBCT is superior in evaluating the tooth’s position. Successful management requires an interdisciplinary approach with an orthodontist responsible for the overall success of the treatment plan. Surgical exposure of these impacted teeth is accomplished using an open or closed surgical procedure. Choosing the appropriate surgical procedure and orthodontic treatment plan will result in a stable, predictable, and aesthetic result.

Current Concepts of Periapical Surgery: 2020 Update 571
Stuart E. Lieblich

Although conventional endodontic procedures are very successful, failure of the initial treatment can occur. Consideration for surgical treatment versus endodontic retreatment needs to be part of the decision along with thoughts of extraction with implant replacement. Apical surgery can preserve many teeth that remain symptomatic after conventional endodontic treatment especially because endodontic failure can occur after 1 year, usually after a definitive restoration is placed. This article reviews current indications for periapical surgery and discusses factors that can predict successful outcomes.

Preprosthetic Dentoalveolar Surgery 583
Wallace S. McLaurin and Deepak Krishnan

Preprosthetic surgery remains a work horse of dentoalveolar surgery. Advances in rehabilitation of the edentulous mouth with the use of osseointegrating dental implants and dermal matrix substitutes have changed the narrative of traditional preprosthetic surgery while maintaining some fundamental principles. An outline of the basic techniques in preprosthetic dentoalveolar surgery is discussed in the setting of these technological and tissue engineering advances.

Reconstruction of the Extraction Socket: Methods, Manipulations, and Management 593
Daniel B. Spagnoli and Christopher C. Niquette Jr.

Extensive reviews have concluded that grafting of the socket reduces bone loss regardless of product or method. However, nothing has been shown to reliably and completely maintain alveolar dimensions. We advocate a biologically driven and anatomically based approach for reconstruction of the socket. There are various socket manipulations that we have found to predictably prepare a site for dental implant. The combination of graft construct design and socket management maximizes graft success for any practitioner. Each socket should be treated individually, and products or methods used that are coincident with the complexity of the defect in question.

Oral Soft Tissue Grafting 611
Janina Golob Deeb and George R. Deeb

The presence of healthy soft tissue at the tooth and implant interface correlates to long-term success and stability in function and esthetics. Grafting procedures utilizing various techniques can be performed during any stage of the implant or restorative therapy. Materials of autogenous, allogeneic, and xenogeneic sources are available for oral soft tissue grafting. This article describes the classifications of soft tissue defects, treatment modalities, and materials used to enhance soft tissue quality and quantity and to achieve optimal esthetics and function around teeth and implants.
Dental Trauma

Lewis C. Jones

Dental trauma and injuries to the dentition are difficult to treat because the treatment goals serve to restore esthetics and function. The oral and maxillofacial surgeon is often called on to coordinate the efforts of rehabilitation after a dentoalveolar injury. A comprehensive understanding of the ideal treatments and use of endodontic, orthodontic, periodontal, and pediatric dental colleagues leads to the best possible results with regards to a restoration of form and function. This article provides a succinct review of the oral and maxillofacial surgeon’s treatment in dentoalveolar trauma. Epidemiology, treatment, and preventative measures are discussed in this article.

Endoscopic Management of Maxillary Sinus Diseases of Dentoalveolar Origin

Justin P. McCormick, Melanie D. Hicks, Jessica W. Grayson, Bradford A. Woodworth, and Do-Yeon Cho

Endoscopic surgery on the maxillary sinus has experienced significant advances in technique and approaches since the maxillary antrostomy was introduced in the 1980s. Disease processes that previously required open surgical approaches to the maxillary sinus can now be treated endoscopically while preserving form and function of the sinus and without injuring the maxillary sinus mucosa or disrupting normal mucociliary clearance. Understanding the techniques described in this article will allow surgeons to appropriately plan treatment strategies for patients with a variety of maxillary sinus diseases from dentoalveolar origin.

Complications of Dentoalveolar Surgery

Patrick J. Louis

This article explores how to prevent and manage complications of dentoalveolar surgery. Many complications are avoidable. Surgical skills and knowledge of anatomy play an important role in prevention of complications. Prevention starts with detailed history and physical examination of the patient. Key to perioperative management of patients is risk assessment. Without a proper history and physical examination, the clinician is unable to assess the risk of performing surgery and anesthesia for each patient. Some illnesses and medications increase the risk of complications. The following complications are discussed: alveolar osteitis, displacement, fracture, hemorrhage, infection, nonhealing wound, oroantral communication, swelling, and trismus.

The Trigeminal Nerve Injury

Arshad Kaleem, Paul Amailuk, Hisham Hatoum, and Ramzey Tursun

Trigeminal nerve branches are never far from the operating field of the oral and maxillofacial surgeon. Increasingly the surgeon is required to provide accurate diagnosis and grading of trigeminal nerve injury, and surgical management by oral and maxillofacial surgeons will become common. Although trauma and ablative procedures for head and neck pathology can cause injuries, dentoalveolar surgical procedures remain an important cause of injury to the fifth cranial nerve, with the third division being the main branch affected. Oral and maxillofacial surgeons should be aware of strategies of avoiding iatrogenic injury, and know when referral and surgical management are appropriate.