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Systematic Assessment of the Patient with Facial Trauma 537
Deepak G. Krishnan

The systematic assessment of patients with facial injuries is the culmination of wisdom from trials and errors, audits of failures and successes, careful and mindful reflection of current practice, and a willingness to change. Emerging technology has positively impacted the practice of management of facial trauma. A systematic evaluation and physical examination of the trauma victim remain the gold standard and the first step toward effective care.

Responsible and Prudent Imaging in the Diagnosis and Management of Facial Fractures 545
Savannah Gelesko, Michael R. Markiewicz, and R. Bryan Bell

This article reviews the current standard of care in imaging considerations for the diagnosis and management of craniomaxillofacial trauma. Injury-specific imaging techniques and options for computer-aided surgery as related to craniomaxillofacial trauma are reviewed, including preoperative planning, intraoperative navigation, and intraoperative computed tomography. Specific imaging considerations by anatomic region include frontal sinus fractures, temporal bone fractures, midfacial fractures, mandible fractures, laryngotracheal injuries, and vascular injuries. Imaging considerations in the pediatric trauma patient are also discussed. Responsible postoperative imaging as it relates to facial trauma management and outcomes assessment is reviewed.

Helping Anesthesiologists Understand Facial Fractures 561
Chad G. Robertson and Jean Charles Doucet

Injuries to the oral and maxillofacial region are commonly encountered, and the appropriate management of patients with these injuries frequently requires the expertise of an anesthesiologist. Injuries to this region may involve any combination of soft tissue, bone, and teeth. Injuries to these structures often produce anesthesia-related challenges, which must be overcome to achieve optimal outcomes. This article addresses the common challenges faced by anesthesiologists specific to patients with facial fractures.

Management of Fractures of the Condyle, Condylar Neck, and Coronoid Process 573
Reha Kisnisci

Proper anatomic reduction of the fracture and accelerated complete recovery are desirable goals after trauma reconstruction. Over the recent decades, significant headway in craniomaxillofacial trauma care has been achieved and advancements in the management for the injuries of the mandibular condyle have also proved to be no exception. A trend in operative and reconstructive options for proper anatomic reduction and internal fixation has become notable as a result of newly introduced technology, surgical techniques, and operative expertise.
Management of Mandibular Angle Fracture
Daniel Cameron Braasch and A. Omar Abubaker

Fractures through the angle of the mandible are one of the most common facial fractures. The management of such fractures has been controversial, however. This controversy is related to the anatomic relations and complex biomechanical aspects of the mandibular angle. The debate has become even more heated since the evolution of rigid fixation and the ability to provide adequate stability of the fractured segments. This article provides an overview of the special anatomic and biomechanical features of the mandibular angle and their impact on the management of these fractures.

Management of Fractures of the Mandibular Body and Symphysis
Reginald H.B. Goodday

Mandibular fracture, specifically in the symphysis and body regions combined, is the most common facial fracture requiring hospitalization in North America. The primary treatment objective is to restore form and function by achieving anatomic reduction and placing fixation that eliminates mobility of the bone fragments. Several treatment options and surgical techniques are available for performing closed or open reduction. Special considerations are necessary when treating pediatric patients and fractures of the edentulous mandible. Complications relating to the tooth and denture-bearing regions of the mandible include infection, nonunion, and neurosensory changes.

Management of Fractures of the Zygomaticomaxillary Complex
Rodrigo Otávio Moreira Marinho and Belini Freire-Maia

The zygomaticomaxillary complex (ZMC) has important aesthetic, structural, and functional roles that need to be preserved and/or restored during treatment of facial fractures. Surgical treatment of ZMC fractures is indicated when there is displacement of the bony fragments, and open reduction and internal fixation is the treatment of choice in cases of comminution or fracture instability. The surgical approaches used for fracture reduction as well as the type, number, and location of the fixation will be determined by the pattern of the fracture and the surgeon’s preference. This article discusses the main points of the management of ZMC fractures.

Management of Fractures of the Nasofrontal Complex
Archibald D. Morrison and Curtis E. Grégoire

Repair of fractures involving the nasofrontal region remains a mainstay of contemporary oral and maxillofacial surgery. This article discusses the epidemiology of these injuries, anatomy of the area, and management of these fractures with insight into potential complications. These include fractures of the frontal sinus, naso-orbital-ethmoidal region, root of the nose, and associated adjacent structures.

Panfacial Fractures: An Approach to Management
William Curtis and Bruce B. Horswell

Panfacial fractures are defined as fractures involving the lower, middle, and upper face. Treatment can be challenging and requires an individualized treatment plan. A firm understanding of the treatment principles of each individual fracture is...
necessary before attempting to tackle the patient with panfacial fractures. Advances in rigid fixation, wide exposure, primary bone grafting, and attention to soft tissue reattachment have significantly improved the treatment of the patient with panfacial fractures.

Late Reconstruction of Condylar Neck and Head Fractures 661
Ben Davis

Condyle fractures are a common injury, but only a few of these injuries require immediate or late reconstruction. The complications that most frequently necessitate condylar reconstruction include proximal segment degeneration, malunion, and ankylosis. Costochondral grafts and total joint prostheses, both stock and custom, remain the most common methods of reconstruction. Reconstruction plates with condylar extensions should only be used temporarily as an unacceptable number cause serious complications. Distraction osteogenesis may have an occasional role in reconstructing the posttraumatic condyle.

Late Reconstruction of Orbital and Naso-orbital Deformities 683
Jan Wolff, George K.B. Sándor, Mikko Pyysalo, Aimo Miettinen, Antti-Veikko Koivumäki, and Vesa T. Kainulainen

Acute orbital fractures and naso-orbital ethmoid fractures can result in chronic orbital and naso-orbital deformities. Understanding the acute injury is the first step in reconstructing the established late deformity. The best management strategy for reconstruction of orbital hypertelorism is to avoid late complications by repairing these deformities early near the time of the original fractures. New technologies from computer-guided surgical planning and additive manufacturing technology produce passive fitting implants tailored for patient-specific needs.

Late Revision or Correction of Facial Trauma–Related Soft-Tissue Deformities 697
Kevin L. Rieck, W. Jonathan Fillmore, and Kyle S. Ettinger

Surgical approaches used in accessing the facial skeleton for fracture repair are often the same as or similar to those used for cosmetic enhancement of the face. Rarely does facial trauma result in injuries that do not in some way affect the facial soft-tissue envelope either directly or as sequelae of the surgical repair. Knowledge of both skeletal and facial soft-tissue anatomy is paramount to successful clinical outcomes. Facial soft-tissue deformities can arise that require specific evaluation and management for correction. This article focuses on revision and correction of these soft-tissue–related injuries secondary to facial trauma.

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