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Preface: Pediatric Temporomandibular Joint Disorders xi
Shelly Abramowicz

Development of the Pediatric Temporomandibular Joint 1
Melissa E. Bender, Rosa B. Lipin, and Steven L. Goudy

This article focuses on the embryologic development and growth of the temporo-
mandibular joint (TMJ) and touches on the development and growth of surrounding
structures. Aberrations in structures surrounding the TMJ can affect its development
as well. The normal adult anatomy of the TMJ is described, as well as common mal-
formations. The clinical ramifications of a malformed TMJ are also discussed to un-
derstand future necessary consultants involved in the care of these patients.

Evaluation of Pain Syndromes, Headache, and Temporomandibular Joint Disorders in
Children 11
Bruce B. Horswell and Jason Sheikh

After a thorough review of the history and presentation of a child’s facial pain, a tar-
geted head and neck examination is critical to the appropriate diagnosis of facial
pain and temporomandibular joint disorders. It is critical to distinguish between the
structural (trauma, degenerative disease, and tumor) and nonstructural (neurogenic,
myogenic, and psychological) causes of pain, which will allow for incorporation of
appropriate strategies of medical, psychological, dental, and surgical therapies.

Imaging of the Pediatric Temporomandibular Joint 25
Matthew R. Hammer and Yassine Kanaan

Imaging of the temporomandibular joint in pediatric patients is a critical component
in the evaluation and treatment of children with temporomandibular joint symptoms.
MRI can provide detailed joint anatomy and identify inflammation, sometimes before
symptom onset. Ultrasound scan is a convenient emerging modality to evaluate the
joint and guide therapeutic injections. Radiography and computed tomography offer
osseous detail to recognize early morphologic changes of the mandibular condyle
and provide operative planning. Imaging promises to direct treatment to prevent
future joint destruction and maintain function.

Nonsurgical Management of Pediatric Temporomandibular Joint Dysfunction 35
Steven John Scrivani, Shehryar Nasir Khawaja, and Paula Furlan Bavia

Temporomandibular disorders (TMDs) are a subgroup of craniofacial pain problems
involving the temporomandibular joint (TMJ), masticatory muscles, and associated
head and neck musculoskeletal structures. These disorders are subclassified into
TMJ articular disorders and masticatory muscle disorders. Patients with TMD
most commonly present with pain, restricted or asymmetric mandibular motion,
and TMJ sounds during mandibular movements. The prevalence tends to increase
with age. Management of TMJ articular disorders consists of a combination of
patient education, home-care plan, biobehavioral therapy, physical therapy, orthotic jaw appliance therapy, pharmacotherapy, and/or surgery. The goal is to increase function, reduce pain, and improve quality of life.

**Trauma to the Pediatric Temporomandibular Joint**

Sam S. Bae and Sharon Aronovich

Management of pediatric condylar fractures presents a unique challenge because the developing mandible provides limited available bone for fixation and primary teeth preclude the use of typical closed reduction techniques. The available literature is reviewed with regard to closed and open treatment approaches.

**Pediatric Tumors of the Temporomandibular Joint**

Gary F. Bouloux, Steven M. Roser, and Shelly Abramowicz

The incidence of tumors and pseudotumors of the temporomandibular joint (TMJ) in the pediatric population is low. They are often challenging to recognize unless associated with signs and symptoms that may erroneously be interpreted as TMJ dysfunction. Tumors of the TMJ can be divided into 3 categories based on the nature and type of precursor cell involved in the tumor: benign tumors, malignant tumors, and pseudotumors. This article discusses the most common entities in these categories.

**Congenital Abnormalities of the Temporomandibular Joint**

Christopher J. Galea, Jason E. Dashow, and Jennifer E. Woerner

Congenital deformities of the temporomandibular joint (TMJ) complex can present as a heterogeneous continuum of growth disturbances of the mandibular condyle, articular eminence, and temporal bone. This article describes several syndromes with congenital condylar deformity, including mandibulofacial dysostosis (Treacher Collins syndrome), hemifacial microsomia, oculoauriculovertebral syndrome, oculo-mandibulodyscephaly (Hallemann-Streiff syndrome), and Nager syndrome. Variations in the extent of TMJ deficiency seen in each individual case influence the timing and techniques of TMJ reconstruction.

**Acquired Abnormalities of the Temporomandibular Joint**

Anne-Frédérique Chouinard, Leonard B. Kaban, and Zachary S. Peacock

Mandibular growth is a complex process that involves the “functional matrix,” an interaction of the muscles of mastication, occlusion, and jaw function. Although not a typical growth center, the mandibular condyle has a significant effect on the ultimate size, shape, and function of the mandible and secondarily on overall facial form. Acquired temporomandibular joint (TMJ)/condylar abnormalities, such as juvenile idiopathic arthritis, idiopathic condylar resorption, TMJ ankylosis, and condylar hyperplasia, often result in facial deformity and functional deficits. Accurate diagnosis is critical for the clinician to assess potential progression of deformity, predict prognosis, and plan treatment.

**Treatment of the Temporomandibular Joint in a Child with Juvenile Idiopathic Arthritis**

Eric J. Granquist

The oral and maxillofacial surgeon is instrumental in the management and care of pediatric patients with juvenile idiopathic arthritis (JIA) and should include JIA in
the differential when evaluating pediatric patients with temporomandibular joint (TMJ) dysfunction. Medical management has largely decreased the need for surgical intervention, but these patients may require intraarticular steroid injections of the TMJ, close follow-up to monitor their facial growth, and management of the subsequent postinflammatory degenerative TMJ changes. This article reviews the oral and maxillofacial surgeon’s role in the care of patients with JIA involvement in the TMJ.

Temporomandibular Joint Reconstruction in the Growing Child

Cory M. Resnick

Indications and considerations for reconstruction of the temporomandibular joint (TMJ) differ between growing and skeletally mature patients. Osteoarthritis, which is the most common cause of TMJ destruction in adults, is comparatively rare in children. The most common indications in young patients are congenital deformities, pathology, ankylosis, and progressive resorptive processes. Options for reconstruction include distraction osteogenesis, autologous reconstruction (ie, costochondral graft, free fibula flap), and total alloplastic joint replacement. The choice of the ideal reconstruction is based on multiple factors, which include extent and laterality of the deformity, patient age, jaw growth pattern, and potential for progressive destruction.