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Scott G. Edwards

Acute Dislocations of the Adult Elbow **1**
E. Rhett Hobgood, Sami O. Khan, and Larry D. Field

Despite the highly constrained nature of the elbow joint, dislocation is not uncommon. Uncomplicated (simple) dislocations are those that occur without fracture and usually can be managed successfully with closed reduction and early motion. Precise attention, however, should be given to the stability of the elbow immediately after reduction. Instability can persist in full extension and require modification in forearm rotation and limitation of full extension to maintain stability. Soft tissue injury can be severe, at times requiring surgical repair to maintain stability.

Complications Related to Simple Dislocations of the Elbow **9**
Benjamin D. Martin, John A. Johansen, and Scott G. Edwards

Simple elbow dislocations may present complications that are anything but simple. Although occurring less frequently, these complications are identical to those associated with more complex fracture-dislocations: contracture, heterotopic ossification, Essex-Lopresti injury, neurovascular injury, and residual instability. Each complication is discussed, including strategies for prevention, evaluation, and treatment.

Optimizing Elbow Rehabilitation After Instability **27**
Mike Szekeres, Shrikant J. Chinchalkar, and Graham J.W. King

Elbow instability is a common clinical problem that requires careful assessment and treatment to achieve a successful outcome. Rehabilitation is a key element in achieving a stable mobile elbow. Careful communication between the treating therapist and surgeon is essential so that an optimal rehabilitation program can be developed and implemented. By understanding the patterns of injury and the biomechanics of the elbow, a good outcome can be achieved in most patients who have elbow instability.

Complex Elbow Instability **39**
Matthew DiPaola, William B. Geissler, and A. Lee Osterman

This article attempts to outline the most current relevant literature regarding diagnosis, pathoanatomy, and treatment options for complex elbow instability. Specific attention is directed toward unique injury patterns, important biomechanical principles, and recent clinical outcome studies. Directions for future research are suggested.

Ulnar Collateral Ligament Reconstruction **53**
Alex Meyers, Brad Palmer, and Mark E. Baratz

Since the first description of an ulnar collateral ligament (UCL) tear at the elbow 60 years ago and the first description of surgical reconstruction 20 years ago, many advances have been made in management and surgery. UCL tears at the elbow remain a disease of the overhead athlete. Various imaging studies have been used in the diagnosis of UCL tears at the elbow; however, the physical examination and history continue to be the most important tools. This article describes the history and what has been learned as well as the approach to the treatment of UCL tears at the elbow.

Lateral Collateral Ligament Instability of the Elbow **69**
Mark S. Cohen

Lateral elbow support is provided by a combination of bony anatomy and the ligaments and tendons that originate at the lateral epicondyle. Instability is typically posttraumatic in nature. In the acute setting of elbow fracture-dislocation, restoration of lateral soft tissue support can be typically accomplished by a direct repair of the lateral ligament and extensor tendon origins to the humeral epicondyle. In chronic settings, a reconstruction is most commonly necessary using a free tendon graft. Indications and surgical techniques are discussed.

The Rheumatic Causes of Elbow Instability **79**
Angus B. Worthing and Thomas R. Cupps

Rheumatoid arthritis is the most common cause of elbow instability, but other causes include other erosive arthritides and noninflammatory diseases. Surgical consultation should be obtained for refractory pain or disability, or when physical examination or imaging reveals instability, erosions, or impending pathologic fracture. Medical management for rheumatoid arthritis includes early treatment and combination therapy, including biologic response modifiers. Current recommendations for rheumatic medicines, including perioperative use, are discussed.

Chronically Unreduced Elbow Dislocations **91**
Robert P. Lyons and April Armstrong

This article focuses on various methods to treat the chronically unreduced elbow. There are only a few small series published in the literature on which to base treatment options. Anatomic features pertinent to the discussion of the chronically unstable elbow are highlighted. The spectrum of treatment options includes open reduction, internal fixation and ligament reconstruction, external fixation, and elbow arthroplasty. The indications, operative technique, and results of each treatment modality are explored.

Instability After Total Elbow Arthroplasty **105**
David Ring

Instability has limited the indications and appeal of unlinked (unconstrained, surfacing replacing) total elbow arthroplasties. True dislocation occurs in fewer than 5% of patients and may be less common when careful operative technique ensures appropriate tensioning of the medial collateral ligament, secure repair of the lateral collateral ligament, and preservation of the anterior capsule and triceps. Conversion of an unstable unlinked total elbow arthroplasty to a linked total elbow arthroplasty can be a complex and difficult procedure, but usually salvages a functional elbow.

Management of the Flail Elbow **113**
Robert Z. Tashjian, Douglas T. Hutchinson, and Angela A. Wang

Flail elbow is a relatively uncommon cause of elbow dysfunction. It is defined as the inability to position the arm in space for useful elbow function because of structural or neurologic inadequacies. Patient function is often severely compromised and treatment options are limited with moderate levels of success depending on etiology. This article reviews the various etiologies of dysfunctional elbow instability, their treatment options, and their expected outcomes.

Essex-Lopresti Injuries **125**
Seth D. Dodds, Peter C. Yeh, and Joseph F. Slade III

The Essex-Lopresti injury results from a high energy trauma to the upper extremity causing significant instability to the forearm joint. The radial head is fractured, the interosseous membrane is torn, and the distal radioulnar joint is disrupted. Frequently, the greatest challenge with this specific injury pattern is the diagnosis, because it is often missed in the emergency room. Once the diagnosis has been established, surgical treatment focuses on the elbow (radial head fracture) and the wrist (distal radioulnar joint disruption) to restore forearm length and stability. Chronic or untreated Essex-Lopresti lesions continue to challenge treating physicians and often require salvage or reconstructive procedures to minimize pain and return function.

Elbow Instability in Children **139**
Lisa L. Lattanza and Greg Keese

Instability in the pediatric elbow can be secondary to trauma, developmental disorders, congenital anomalies, inherited disorders, or acquired systemic processes. The pediatric elbow presents unique challenges with regard to open growth plates, propensity for dislocation and spontaneous reduction, and increased time for the development of post-traumatic deformity into adulthood. The purpose of this article is to review current concepts of injuries leading to elbow instability, discuss how to recognize and treat the instability, and address other, nontraumatic causes of elbow instability.

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