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Review Articles

751 Surgical Treatment of Flail Chest and Rib Fractures

T. Ty Fowler, MD, and Benjamin C. Taylor, MD—Columbus, Ohio
Michael J. Bellino, MD—Stanford, California
Peter L. Althausen, MD—Reno, Nevada

Flail chest remains a clinically significant finding. Treatment with aggressive pulmonary toilet, ventilator support, and different modalities of pain control remains the benchmark of care. However, recent randomized controlled studies of surgical intervention have demonstrated improvement in the number of ventilator days, intensive care unit and hospital stays, incidence of pneumonia, and respiratory function and hospital costs as a result of modern plating technology and improved surgical approaches.

761 Acute Management of Shoulder Dislocations

Thomas Youm, MD—New York, New York
Richelle Takemoto, MD—Lihue, HI
Brian Kyu-Hong Park, MD—New York, New York

Because the shoulder joint relies on soft-tissue restraints for stability, it is at the highest risk for dislocation. Thorough knowledge of the shoulder's anatomy as well as classification of dislocations, anesthetic techniques, and reduction maneuvers is crucial for early management of acute shoulder dislocation. Choice of technique is based on physician preference. The orthopaedic surgeon must be well versed in several reduction methods and ascertain the best technique for each patient.

772 Antibiotic Stewardship in Orthopaedic Surgery: Principles and Practice

Kirk A. Campbell, MD, Spencer Stein, MD, Christopher Looze, MD, and Joseph A. Bosco, MD—New York, New York

Antibiotic stewardship programs have a multidisciplinary staff that can help guide antibiotic selection and dosage. These programs also perform active surveillance of antimicrobial use and may reduce Clostridium difficile and other drug-resistant bacterial infections by providing expert guidance on judicious antibiotic usage. The emergence of antibiotic-resistant pathogens, the geographical diversity of these pathogens, and changing patient population require customization of prophylactic regimens. A multidisciplinary approach to antibiotic stewardship can lead to improved patient outcomes and cost-effective medical care.

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782 Identification of Common Gait Disruption Patterns in Children With Cerebral Palsy

Jon R. Davids, MD, and Anita M. Bagley, PhD, MPH—Sacramento, California

The current gait disruption classification system incorporates the most clinically useful aspects of previous systems, using primary versus compensatory deviations to identify common patterns and common causes for these patterns. The primary sagittal plane patterns include jump, crouch, and stiff gait. The primary transverse plane patterns include internal, external, and neutral progression gait. Apparent coronal plane deviation patterns are usually the consequence of sagittal and transverse plane deviations seen out of plane. Individualized patient assessment is essential.

791 Update on Zone II Flexor Tendon Injuries

Christopher J. Dy, MD, MPH—St. Louis, Missouri

Aaron Daluiski, MD—New York, NY

Flexor tendon repair in zone II requires meticulous surgical technique using a multistrand core suture and a peripheral suture to produce a tendon that is strong enough to withstand early mobilization. Mechanical strength increases with the number of strands crossing the repair, regardless of the core suture configuration. Satisfactory results have been achieved with either early passive or early active motion rehabilitation protocols. Repair integrity, concurrent injuries, and anticipated patient compliance should be considered in the decision-making process.

800 Three-dimensional Intraoperative Imaging Modalities in Orthopaedic Surgery: A Narrative Review

Sheeraz Qureshi, MD, MBA, Young Lu, MD, Steven McAnany, MD, and Evan Baird, MD—New York, NY

The use of intraoperative imaging devices such as the O-arm and isocentric C-arm, coupled with navigation platforms may significantly reduce the risk of pedicle screw perforations. This technology is especially useful in trauma, deformity, and revision surgeries. Whether these improvements in the accuracy of pedicle screw placement translate into superior clinical or surgical outcomes is currently moot. Future studies are needed to determine the differences in functional and surgical outcomes between navigation and non-navigation techniques.

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Instructional Course Lecture

810 Elbow Arthroscopy: Indications, Techniques, Outcomes, and Complications

Julie E. Adams, MD—Austin, Minnesota and Rochester, Minnesota
Graham J.W. King, MD—London, Ontario, Canada
Scott P. Steinmann, MD—Rochester, Minnesota
Mark S. Cohen, MD—Chicago, Illinois

Elbow arthroscopy is a useful tool to address pathology about the elbow; published studies to date document its effectiveness in addressing inflammatory and degenerative arthritis and lateral epicondylitis. Favorable outcomes require careful patient evaluation, a thorough understanding of anatomic principles, and proper patient positioning and portal selection to guide preoperative planning and overall patient care. Understanding the limitations of this technique and potential complications and alternative procedures is important.

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Levels of evidence given for references are as follows: level I, high-quality randomized controlled trial, systematic review of level I trials, or high-quality prospective study; level II, lesser-quality randomized controlled trial, prospective comparative study, systematic review of level II studies, or retrospective study; level III, case-control study or retrospective comparative study; level IV, case series; and level V, expert opinion.