

CONTENTS

Preface	ix
Tamara D. Rozental	
Anatomy and Pathomechanics of the Thumb	219
Fraser J. Leversedge	
<p>The prehensile thumb provides the human mind an outlet for coordinated activity through its fine motions of prehension, opposition, and circumduction. A comprehensive understanding of the anatomy and biomechanics of the thumb provides a foundation on which functional disorders may be recognized and effectively treated.</p>	
Physical Diagnosis and Radiographic Examination of the Thumb	231
Peter Tsai and Pedro K. Beredjiklian	
<p>Arthritis of the thumb joints is a common problem and remains a significant cause of morbidity in the adult population. Careful physical examination is critical in the assessment of these patients, given the large differential diagnosis of conditions affecting the thumb and the radial side of the wrist. Because treatment should be specifically directed at the area of pathology, adequate diagnosis is vital. Plain radiograph evaluation remains the diagnostic modality of choice in the evaluation of patients with degenerative conditions about the hand and wrist.</p>	
Treatment of Thumb Metacarpophalangeal and Interphalangeal Joint Arthritis	239
Eon K. Shin and A. Lee Osterman	
<p>Degenerative joint disease affecting the thumb metacarpophalangeal and interphalangeal joints is a debilitating condition, which can significantly restrict activities of daily living. Conservative measures to address symptoms include oral anti-inflammatory medications, activity modification and splinting, and intraarticular corticosteroid injections. Surgical interventions include arthroscopic synovectomy, arthroplasty, and finally arthrodesis of the affected articulations. Although short-term results from synovectomy and arthroplasty seem promising, long-term data are not yet available. Arthrodesis of the metacarpophalangeal and interphalangeal joints yields a stable yet functional thumb with reliably good pain relief.</p>	
Early Treatment of Degenerative Arthritis of the Thumb Carpometacarpal Joint	251
Jeffrey Yao and Min J. Park	
<p>Degenerative arthritis of the thumb carpometacarpal (CMC) joint is a common disorder that may affect anyone but most frequently affects the postmenopausal female</p>	

population. Because of its high prevalence, the management of the condition has been a popular topic among hand surgeons and therapists worldwide. There are many decisions to consider when devising the appropriate treatment plan for each patient. In particular, early stages of thumb CMC joint arthritis may be treated nonoperatively or with less invasive surgical techniques to relieve symptoms, restore function and strength, stop the progression of the disease, and even potentially reverse the process. This article explores treatment options at the disposal of primary care physicians and hand surgeons for early thumb CMC arthritis.

Treatment of Advanced Carpometacarpal Joint Disease: Carpometacarpal Arthroplasty with Ligament Interposition

263

Damien I. Davis and Louis Catalano III

Basal joint arthritis is a common condition, primarily affecting postmenopausal women. Persistent pain and functional impairment despite conservative treatment are indications for operative intervention. Ligament reconstruction and tendon interposition (LRTI) arthroplasty is one of the most popular and time-tested operations to treat metacarpal instability and basal joint arthritis. LRTI incorporates three fundamental principles that address the underlying anatomic pathology: (1) trapezium excision, either partial or complete, to eliminate eburnated bone and the source of pain; (2) anterior oblique ligament reconstruction for carpometacarpal joint stability; and (3) tendon interposition to minimize axial shortening and prevent bony impingement.

Treatment of Advanced Carpometacarpal Joint Disease: Trapeziectomy and Hematoma Arthroplasty

271

Brian T. Fitzgerald and Eric P. Hofmeister

Some surgical treatment options of painful basal joint arthritis do not require complex arthroplasty or suspensionplasty techniques. Simple trapeziectomy with temporary pinning of a slightly overdistracted thumb metacarpal can provide reliable pain relief, good motion, and functional stability. Recent literature supports alternative options when compared with formal ligament reconstruction or suspensionplasty procedures. Simple trapeziectomy is associated with less morbidity due to shorter operative times and the lack of need for graft harvest and ligament reconstruction.

Treatment of Advanced CMC Joint Disease: Trapeziectomy and Implant Arthroplasty (Silastic–Metal–Synthetic Allograft)

277

Brandon E. Earp

Osteoarthritis of the basal joint of the thumb is a common and frequently debilitating condition, most often affecting middle-aged women. Nonoperative treatment with activity modification, splinting, oral anti-inflammatory medication, and intraarticular steroid injection frequently leads to acceptable control of symptoms. If nonoperative treatment fails, many surgical techniques have been described for management of symptomatic advanced degenerative joint changes. This article reviews the literature related to various arthroplasty options for advanced disease. Treatment decisions must clearly be tempered by the surgeon's experience, the patient's goals and expectations, and the extent of degenerative disease.

Treatment of Advanced Carpometacarpal Joint Disease: Arthrodesis

285

Julia A. Kenniston and David J. Bozontka

Thumb carpometacarpal arthritis is a common condition that may result in debilitating pain and loss of acceptable hand function. If patients continue to be symptomatic after a trial of nonoperative management, many surgical options exist in the treatment of

carpometacarpal arthritis. For isolated trapeziometacarpal arthritis, arthrodesis is a viable option to create a pain free, strong, and stable thumb.

Carpometacarpal Joint Disease: Addressing the Metacarpophalangeal Joint Deformity

295

Edward J. Armbruster and Virak Tan

The successful surgical treatment of arthrosis of the carpometacarpal articulation of the thumb requires a thorough understanding and evaluation of the intercalated axis of the first ray. A hyperextension/adduction deformity commonly occurs at the metacarpophalangeal joint of the thumb with advanced stages of carpometacarpal arthrosis. Failure to recognize and treat the metacarpophalangeal deformity may result in continued pain and poor outcomes. Additionally, the stability of the ligament reconstruction may become compromised, resulting in recurrence of deformity and longitudinal collapse. This article presents an orderly means of clinical and radiographic evaluation of this deformity and recommends surgical treatments to correct hyperextension and maximize functional outcomes. A treatment algorithm is provided.

Treatment of Scaphotrapezio-Trapezoid Arthritis

301

Jennifer Moriatis Wolf

Arthritis of the scaphotrapeziotrapezoid (STT) joint presents with deep thenar eminence and thumb basilar pain and is often coexistent with carpometacarpal arthritis of the thumb. Conservative treatment includes splinting and corticosteroid injections. Operative treatment consists primarily of fusion of the STT joint, although alternatives include trapeziectomy, fibrous arthroplasty, and prosthetic replacements. When STT arthritis is coexistent with carpometacarpal arthritis, excision of the trapezium and proximal 2 mm of trapezoid has been recommended. Complications of surgery include pericarpal arthrosis, superficial radial nerve injury, and nonunion.

The Rheumatoid Thumb

307

Aron T. Chacko and Tamara D. Rozental

Rheumatoid arthritis of the thumb is a common source of disability. Obtaining an understanding of the underlying biologic and physical manifestations of rheumatoid arthritis is essential in the choice of treatment of the disease. In the early stages of the disease, conservative and less invasive measures can be used. In the more advanced stages, arthrodesis and arthroplasty are often used. Isolated interphalangeal involvement is best managed with arthrodesis. Metacarpophalangeal involvement in low-demand patients can be treated with arthroplasty, whereas arthrodesis can be used in more active patients. Patients who have carpometacarpal joint damage are best treated with trapezium resection arthroplasty.

Index

315