

Soft Tissue Reconstruction of Complete Circumferential Defects of the Upper Extremity

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Original Article

Background Upper extremity soft tissue defects with complete circumferential involvement are not common. Coupled with the unique anatomy of the upper extremity, the underlying etiology of such circumferential soft tissue defects represent additional reconstructive challenges that require treatment to be tailored to both the patient and the wound. The aim of this study is to review the various options for soft tissue reconstruction of complete circumferential defects in the upper extremity.

Methods A literature review of PubMed and MEDLINE up to December 2016 was performed. The current study focuses on forearm and arm defects from the level at or proximal to the wrist and were assessed based on Tajima's classification (J Trauma 1974). Data reviewed for analysis included patient demographics, causality, defect size, reconstructive technique(s) employed, and postoperative follow-up and functional outcomes (when available).

Results In accordance with the Preferred Reporting Items for Systematic Reviews and Meta-Analyses guidelines, 14 unique articles were identified for a total of 50 patients (mean = 28.1 years). Underlying etiologies varied from extensive thermal or electrical burns to high impact trauma leading to degloving or avulsion, crush injuries, or even occur iatrogenically after tumor extirpation or extensive debridement. Treatment options ranged from the application of negative pressure wound dressings to the opposite end of the spectrum in hand transplantation.

Conclusions With the evolution of reconstructive techniques over time, the extent of functional and aesthetic rehabilitation of these complex upper extremity injuries has also improved. The proposed management algorithm comprehensively addresses the inherent challenges associated with these complex cases.

Keywords Upper extremity / Reconstructive surgical procedures / Soft tissue injuries

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INTRODUCTION

The upper extremity is functionally and anatomically complex. Its role in our daily interactions with the external environment

translates to an increased susceptibility to various forms of trauma including burns (thermal, electrical), degloving or avulsion and crush injuries of the skin envelope. Occasionally, the resultant soft tissue defect may involve complete circumferential de-

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Soft Tissue Reconstruction in the Upper Extremity Robin R. Richards, 1995 Presents unified and comprehensive information on the full gamut of soft tissue reconstructive procedures in the adult upper extremity This is a comprehensive well illustrated reference *Ballistic Injuries of the Upper Extremity, An Issue of Hand Clinics* Andrew Miller, Kevin C. Chung, 2025-08-28 In this issue of Hand Clinics guest editors Drs Andrew Miller and Kevin C Chung bring their considerable expertise to the topic of Ballistic Injuries of the Upper Extremity Non fatal firearm injuries require careful treatment and management because they can often cause complex extremity injuries In this issue top experts discuss patients with ballistic upper extremity injuries to help surgeons improve function and mobility Contains 12 relevant practice oriented topics including ballistic injuries in the civilian population ballistic injuries in the military population epidemiology of ballistic injuries and legal implications Ukrainian orthopedic trauma experience in managing wartime injuries of the upper extremity and more Provides in depth clinical reviews on ballistic injuries of the upper extremity offering actionable insights for clinical practice Presents the latest information on this timely focused topic under the leadership of experienced editors in the field Authors synthesize and distill the latest research and practice guidelines to create clinically significant topic based reviews

Rehabilitation of the Hand and Upper Extremity, 2-Volume Set E-Book Terri M. Skirven, A. Lee Osterman, Jane Fedorczyk, Peter C. Amadio, 2011-02-10 With the combined expertise of leading hand surgeons and therapists Rehabilitation of the Hand and Upper Extremity 6th Edition by Drs Skirven Osterman Fedorczyk and Amadio helps you apply the best practices in the rehabilitation of hand wrist elbow arm and shoulder problems so you can help your patients achieve the highest level of function possible This popular unparalleled text has been updated with 30 new chapters that include the latest information on arthroscopy imaging vascular disorders tendon transfers fingertip injuries mobilization techniques traumatic brachial plexus injuries and pain management An expanded editorial team and an even more geographically diverse set of contributors provide you with a fresh authoritative and truly global perspective while new full color images and photos provide unmatched visual guidance Access the complete contents online at www.expertconsult.com along with streaming video of surgical and rehabilitation techniques links to Pub Med and more Provide the best patient care and optimal outcomes with trusted guidance from this multidisciplinary comprehensive resource covering the entire upper extremity now with increased coverage of wrist and elbow problems Apply the latest treatments rehabilitation protocols and expertise of leading surgeons and therapists to help your patients regain maximum movement after traumatic injuries or to improve limited functionality caused by chronic or acquired conditions Effectively implement the newest techniques detailed in new and updated chapters on a variety of sports specific and other acquired injuries and chronic disorders Keep up with the latest advances in arthroscopy imaging vascular disorders tendon transfers fingertip injuries mobilization techniques traumatic brachial plexus injuries and pain management See conditions and treatments as they appear in practice thanks to

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Rehabilitation of the Hand and Upper Extremity, E-Book Terri M. Skirven, A. Lee Osterman, Jane Fedorczyk, Peter C. Amadio, Sheri Felder, Eon K Shin, 2020-01-14 Long recognized as an essential reference for therapists and surgeons treating the hand and the upper extremity *Rehabilitation of the Hand and Upper Extremity* helps you return your patients to optimal function of the hand wrist elbow arm and shoulder Leading hand surgeons and hand therapists detail the pathophysiology diagnosis and management of virtually any disorder you're likely to see with a focus on evidence based and efficient patient care Extensively referenced and abundantly illustrated the 7th Edition of this reference is a must read for surgeons interested in the upper extremity hand therapists from physical therapy or occupational therapy backgrounds anyone preparing for the CHT examination and all hand therapy clinics Offers comprehensive coverage of all aspects of hand and upper extremity disorders forming a complete picture for all members of the hand team surgeons and therapists alike Provides multidisciplinary global guidance from a Who's Who list of hand surgery and hand therapy editors and contributors Includes many features new to this edition considerations for pediatric therapy a surgical management focus on the most commonly used techniques new timing of therapeutic interventions relative to healing characteristics and in print references wherever possible Features more than a dozen new chapters covering Platelet Rich Protein Injections Restoration of Function After Adult Brachial Plexus Injury Acute Management of Upper Extremity Amputation Medical Management for Pain Proprioception in Hand Rehabilitation Graded Motor Imagery and more Provides access to an extensive video library that covers common nerve injuries hand and upper extremity transplantation surgical and therapy management and much more Helps you keep up with the latest advances in arthroscopy imaging vascular disorders tendon transfers fingertip injuries mobilization techniques traumatic brachial plexus injuries and pain management all clearly depicted with full color illustrations and photographs

Flaps and Reconstructive Surgery E-Book Fu-Chan Wei, Samir Mardini, 2016-08-26 With coverage of nearly twice the number of flaps as the previous edition *Flaps and Reconstructive Surgery* 2nd Edition provides trainees and practicing surgeons alike with the detailed expert knowledge required to ensure optimal outcomes It includes chapters and expert commentaries from more than 100 authors and world renowned leaders in the field while brand new cases and high quality illustrations focused on flap harvest markings and reconstruction keep you abreast of today's latest developments Includes high quality illustrations of regional anatomy flap anatomy and step by step flap dissections as well as clear photographs demonstrating successful reconstructions Detailed case studies illustrate how to optimize every aspect of care for the reconstructive surgery patient including the postoperative period and long term follow up Expert Consult eBook version included with purchase This enhanced eBook experience allows you to search all of the text figures images videos

and references from the book on a variety of devices Expanded video library of narrated surgical procedures covers most of the flaps used in reconstructive surgery Brand new section on reconstruction takes an algorithmic approach to the reconstruction of defects around the body Features chapters covering the entire spectrum of reconstructive surgery including head and neck reconstruction chest wall reconstruction abdominal wall upper and lower extremity and facial reanimation Content focuses on both local and free flaps New section on reconstructive transplant surgery highlights major topics such as face and hand transplantations abdominal wall transplantation uterus transplantation and nerve allotransplantation

Grabb and Smith's Plastic Surgery Kevin C. Chung, 2024-09-05 The definitive text for medical students and residents in plastic surgery Grabb and Smith's Plastic Surgery Ninth Edition covers every aspect of this challenging field in up to date easy to understand detail Superb illustrations convenient key points and relevant review questions help you develop a deeper understanding of basic principles and prepare effectively for the In Training Exam ITE and other certification exams Dr Kevin C Chung leads a team of expert contributing authors to create a fully revised resource that also serves as a reference for practicing plastic surgeons to refresh knowledge and to enhance competency in various topics Coverage includes all areas of plastic surgery basic science principles and techniques skin and soft tissue topics congenital anomalies and pediatric plastic surgery head and neck surgery aesthetic surgery breast surgery body contouring hand surgery and trunk and lower extremity surgery

Grabb and Smith's Plastic Surgery Charles H. Thorne, 2013-09-26 Grabb and Smith's Plastic Surgery has long been considered the premier reference for plastic surgery residents and practitioners So it should be no surprise that for this 7th edition major steps have been taken to completely revise and refresh its content As always this single volume reference covers all major areas of plastic and reconstructive surgery including pediatric issues But updates in this latest edition include a complete reworking of the section on the Hand an expansion of the dermatology coverage a new section on body contouring and 11 new chapters Principles of Awake Sedation Otoplasty Congenital Anomalies of the Breast Brachioplasty and Upper Trunk Contouring Principles of Plastic Surgery after Massive Weight Loss Anesthetic Techniques in the Upper Extremity Management of Mutilating Injuries of the Upper Extremity Hand Tumors Vascular Disorders of the Upper Limb Management of the Burned Hand and Rheumatoid Arthritis and Atypical Arthritic Conditions of the Hand

Green's Operative Hand Surgery E-Book Scott W. Wolfe, William C. Pederson, Scott H. Kozin, Mark S. Cohen, 2021-12-03 Widely recognized as the gold standard reference in the field Green's Operative Hand Surgery 8th Edition provides complete coverage of the surgical and nonsurgical management of the full range of upper extremity conditions In a clearly written and well illustrated format it contains both foundational content for residents and fellows as well as new approaches case based controversies and outcomes based solutions for practitioners Drs Scott W Wolfe William C Pederson Scott H Kozin and Mark S Cohen along with new international contributing authors provide expert perspectives and preferred methods for all aspects of today's hand wrist and elbow surgery Contains

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Advances in Upper and Lower Extremity Microvascular Reconstructions Frédéric Schuind, 2002 Advances made in microsurgical techniques during the last three decades have dramatically improved the treatment of complex limb injuries such as a closed fracture covered by healthy tissue and a complex open fracture of the tibia Microvascular transfers from the foot have revolutionized the treatment of digital amputations and vascularized bone transfers are used in various indications The microvascular techniques are still evolving Many imaginative new flaps are being proposed to meet precisely the functional requirements of the various defects Alternative anastomotic techniques are being investigated and the no flow phenomenon has been extensively studied Allotransplantation may be feasible in the future This unique book is a result of the exchange of ideas among clinicians of various specialties noted for their innovations and basic researchers involved with the problems of microvascular reconstruction of upper and lower extremities While most of the chapters are invited contributions some are based on presentations made during an international symposium held in Brussels Belgium in 1997

Plastic Surgery E-Book: 6 - Volume Set Peter C. Neligan, 2012-09-15 Fully updated to meet the demands of the 21st century surgeon Plastic Surgery provides you with all the most current knowledge and techniques across your entire field allowing you to offer every patient the best possible outcome Edited by Drs Mathes and Hentz in its last edition this six volume plastic surgery reference now features new expert leadership a new organization new online features and a vast collection of new information delivering all the state of the art know how you need to overcome any challenge you may face Renowned authorities provide evidence based guidance to help you make the best clinical decisions get the best results from each procedure avoid complications and exceed your patients expectations Consult this title on your favorite e reader conduct rapid searches and adjust font sizes for optimal readability Compatible with Kindle nook and other popular devices Apply the very latest advances in every area of plastic surgery and ensure optimal outcomes with evidence based advice from a diverse collection of world leading authorities Master the latest on stem cell therapy tissue engineering and inductive therapies aesthetic surgical techniques and nonsurgical treatments conjoined twin separation and other craniofacial surgery advances

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Innovation in Upper Extremity Fracture Treatment, An Issue of Hand Clinics, E-Book Lauren M Shapiro, Robin Kamal, 2023-10-13 In this issue of Hand Clinics guest editors Drs Lauren Shapiro and Robin Kamal bring their considerable expertise to the topic of Innovation in Upper Extremity Fracture Treatment Advances in the treatment of upper extremity fractures have led to techniques that include smaller incisions enhanced implant design and novel surgical approaches In this issue top experts discuss the advanced techniques can be applied to hand surgery practice to improve patient outcomes Contains 15 relevant practice oriented topics including minimally invasive techniques for the treatment of metacarpal and phalanx fractures patient specific implants for the treatment of fractures pre operative surgical optimization to improve outcomes novel tools to approach and measure outcomes in patients with fractures and more Provides in depth clinical reviews on innovation in upper extremity fracture treatment offering actionable insights for clinical practice Presents the latest information on this timely focused topic under the leadership of experienced editors in the field Authors synthesize and distill the latest research and practice guidelines to create clinically significant topic based reviews *The Handbook of Hand Emergencies* Jose Couceiro, Manuel R. Sanchez-Crespo, Huey Yuan Tien, 2020-10-06 This volume dealing with situations from a nailbed injury to an amputation or a gunshot wound and almost everything in between is a comprehensive but simple manual addressing the most frequent and some of the not so frequent emergencies in the field of hand surgery Every chapter is written by a group of experienced hand surgeons from around the world who will guide the reader on the management of a variety of different conditions and injuries Some of the topics covered here include how to examine and treat an acute brachial plexus injury learning how wrist biomechanics is applied to the management of acute carpal injuries and performing wide awake anesthesia with no tourniquet on an acutely injured hand among many others Grabb's Encyclopedia of Flaps: Upper Extremities, Torso, Pelvis, and Lower Extremities Berish Strauch, Luis O. Vasconez, Charles K. Herman, Bernard T. Lee, 2015-11-11 Still the most comprehensive reference available on surgical flaps this classic text remains your go to source for practical authoritative guidance on achieving the best possible outcomes for your patients The thoroughly revised 4th Edition features an all new full color format that greatly enhances its visual appeal and usefulness in your everyday practice Dozens of internationally recognized experts describe every clinical proven flap option available for repairing both routine

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Hand and Upper Extremity Surgery, An Issue of Clinics in Plastic Surgery, An Issue of Clinics in Plastic Surgery, E-Book Kevin C. Chung, Brian Starr, 2024-09-02 In this issue of Clinics in Plastic Surgery guest editors Drs Kevin C Chung and Brian Starr bring their considerable expertise to the topic of Hand and Upper Extremity Surgery Top experts in the field discuss key topics such as principles for achieving predictable outcomes in flexor tendon repair nerve vs tendon transfers in the management of isolated upper extremity peripheral nerve injuries free functional muscle transfer current and future directions for upper extremity amputations TMR vs RPNI and more Contains 13 relevant practice oriented topics including optimizing outcomes in revision peripheral nerve surgery the mangled upper extremity algorithm for salvage my workhorse flaps bone grafts and flaps in the management of complex upper extremity defects optimizing outcomes in the management of the burned hand preserving and reconstructing the traumatized thumb and more Provides in depth clinical reviews on hand and upper extremity surgery offering actionable insights for clinical practice Presents the latest information on this timely focused topic under the leadership of experienced editors in the field Authors synthesize and distill the latest research and practice guidelines to create clinically significant topic based reviews

Management of Elbow Trauma, An Issue of Hand Clinics 31-4 George S. Athwal, 2016-01-07 Injuries to the elbow are common usually occur secondary to indirect trauma and are often accompanied by injury to shoulder or wrist joints It is important to assess injuries promptly and accurately taking into account age and the mechanism of injury particularly because of the risk of accompanying vascular involvement This issue will include articles on Anatomy and Exposures Simple Elbow Dislocations Radial Head Fractures Complex Elbow Instability Radial Head and Coronoid Varus Posteromedial Instability Monteggia and Trans olecranon Injuries Olecranon Fractures Arthroscopic management of Elbow Fractures Elbow trauma in the Athlete Soft Tissue Coverage of the Elbow and many more

Campbell's Operative Orthopaedics E-Book Frederick M. Azar, S. Terry Canale, James H. Beaty, 2016-11-01 Unrivalled in scope and depth Campbell s Operative Orthopaedics continues to be the most widely used resource in orthopaedic surgery relied on for years by surgeons across the globe It provides trusted guidance on when and how to perform every state of the art procedure that s worth using with updates to the new edition including hundreds of new techniques illustrations and digital diagnostic images to keep you abreast of the latest innovations Each chapter follows a standard template with highlighted procedural steps that lead with art and are followed by bulleted text Covers multiple

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soft tissue abdominal wall and trunk and skeletal bone hyperthermia in sarcoma treatment isolated limb perfusion surgery for metastases reconstructive surgery radiation therapy systemic chemotherapy multidisciplinary care treatment induced sarcoma pain management in sarcoma and basic research including molecular biology and mouse models **Information Technology and Computer Application Engineering** Hsiang-Chuan Liu, Wen-Pei Sung, Wenli Yao, 2013-10-11 This proceedings volume brings together some 189 peer reviewed papers presented at the International Conference on Information Technology and Computer Application Engineering held 27-28 August 2013 in Hong Kong China. Specific topics under consideration include Control Robotics and Automation Information Technology Intelligent Computing and Telecommunication Computer Science and Engineering Computer Education and Application and other related topics. This book provides readers a state of the art survey of recent innovations and research worldwide in Information Technology and Computer Application Engineering in so doing furthering the development and growth of these research fields strengthening international academic cooperation and communication and promoting the fruitful exchange of research ideas. This volume will be of interest to professionals and academics alike serving as a broad overview of the latest advances in the dynamic field of Information Technology and Computer Application Engineering **Plastic Surge: 6 Volume Set - E-Book** Peter C. Neligan, 2023-09-25 Comprehensive and fully up to date Dr Peter Neligan's six volume masterwork Plastic Surgery 5th Edition remains the gold standard text in this complex area of surgery. Completely revised to meet the demands of both the trainee and experienced surgeon it features new full color clinical photos procedural videos and lectures across all six volumes. Bonus material online includes additional text images and over 200 procedural videos that help you improve your mastery of the latest techniques. Easily find the answers you need with an organization that features separate volumes covering Principles Aesthetic Craniofacial Head and Neck Surgery and Pediatric Plastic Surgery Lower Extremity Trunk and Burns Breast and Hand and Upper Extremity. Each easily readable individual volume is a standalone comprehensive text full of salient and applicable anatomy and techniques. Key procedures include gender affirmation management and surgery microsurgery and surgery for lymphedema aesthetic facial surgery aesthetic body surgery and the education training and practice of plastic surgery. New digital video preface by Dr Neligan addresses the changes across all six volumes. New treatment and decision making algorithms added to chapters where applicable. New video lectures and editor narrated slide presentations offer a step by step audiovisual walkthrough of techniques and procedures. Four new international experts join the editorial team and lead editor Peter C Neligan creates a cohesive tone throughout the chapters and content across all six volumes. Evidence based advice from a diverse collection of experts allows you to apply the very latest advances in every area of plastic surgery and ensure optimal outcomes. Purchase only the volumes you need or own the entire set with the ability to search across all six volumes online.

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