
Massive Rotator Cuff Tears

Lawrence V. Gulotta • Edward V. Craig
Editors

Massive Rotator Cuff Tears

Diagnosis and Management

 Springer

Editors

Lawrence V. Gulotta, MD
Sports Medicine and Shoulder Service
Hospital for Special Surgery
New York, NY, USA

Edward V. Craig, MD, MPH
Professor of Clinical Surgery
Weill Cornell Medical School
New York, NY, USA

Department of Orthopedic Surgery
Weill Cornell Medical School
New York, NY, USA

Attending Surgeon
Hospital for Special Surgery
New York, NY, USA

ISBN 978-1-4899-7493-8 ISBN 978-1-4899-7494-5 (eBook)
DOI 10.1007/978-1-4899-7494-5
Springer New York Heidelberg Dordrecht London

Library of Congress Control Number: 2014947468

© Springer Science+Business Media New York 2015

This work is subject to copyright. All rights are reserved by the Publisher, whether the whole or part of the material is concerned, specifically the rights of translation, reprinting, reuse of illustrations, recitation, broadcasting, reproduction on microfilms or in any other physical way, and transmission or information storage and retrieval, electronic adaptation, computer software, or by similar or dissimilar methodology now known or hereafter developed. Exempted from this legal reservation are brief excerpts in connection with reviews or scholarly analysis or material supplied specifically for the purpose of being entered and executed on a computer system, for exclusive use by the purchaser of the work. Duplication of this publication or parts thereof is permitted only under the provisions of the Copyright Law of the Publisher's location, in its current version, and permission for use must always be obtained from Springer. Permissions for use may be obtained through RightsLink at the Copyright Clearance Center. Violations are liable to prosecution under the respective Copyright Law.

The use of general descriptive names, registered names, trademarks, service marks, etc. in this publication does not imply, even in the absence of a specific statement, that such names are exempt from the relevant protective laws and regulations and therefore free for general use.

While the advice and information in this book are believed to be true and accurate at the date of publication, neither the authors nor the editors nor the publisher can accept any legal responsibility for any errors or omissions that may be made. The publisher makes no warranty, express or implied, with respect to the material contained herein.

Printed on acid-free paper

Springer is part of Springer Science+Business Media (www.springer.com)

I dedicate this book to my wife, Megan, and my children for their support and encouragement. They make everything in my professional career possible.

I also dedicate this book to my patients. I have learned much from listening to them, and I look forward to learning more from them in the years to come.

Lawrence V. Gulotta, MD

This work is dedicated to my three daughters, Mackenzie, Kelsey, and Taylor, and to my wife Kathryn, collectively the foundation of my professional life—and the purpose of my personal one.

Edward V. Craig, MD

Preface

As the population ages and desires to remain active, we have seen a rise in the number of patients who present with chronic, massive rotator cuff tears. Perhaps a decade ago, we had very limited options for these patients and treatment decisions were made through more art than science. However, with the advent of the reverse shoulder arthroplasty, and a better understanding of the role of tendon transfers and arthroscopy, we now have sound options to offer these patients.

The goal of this book is to present a comprehensive approach to the patient with a massive rotator cuff tear. An overarching theme of the book is that patients with similar imaging findings may present with very different clinical presentations. Once the diagnosis of a massive rotator cuff tear is made, the final treatment recommendation should come down to the patient's main complaints and their expectations. We feel this book serves a unique, but quickly expanding, niche to guide the clinician through this challenging problem.

The book follows a logical path through the issues that surround massive rotator cuff tears. It begins with chapters on the pathoanatomy and work-up. It then proceeds through the indications for, and literature behind, various treatment options. Finally, it ends with a treatment algorithm that can serve as an overall guide for clinicians. In each amenable chapter, we have included a "pearls and pitfalls" table that clearly delineates the key points that each author thinks are most important for their given topic. We hope the format of the book allows the reader to refer to it as a quick reference guide, but one that also offers an in-depth analysis of each topic through the text.

This book would not be possible without the contributions of the authors. They are all leaders in their fields, and each has extensive experience in treating patients with massive tears. They have generously donated their professional and personal time to contribute to this book. We are very grateful for their efforts, and we are honored to call them colleagues and friends.

The most instrumental person in the conception and production of this book is our Developmental Editor at Springer, Michael Griffin. He single-handedly pushed this process through to completion, even as timelines passed and attentions wandered. We are eternally indebted to him for his patience throughout the process, and his meticulous attention to details as drafts were revised. Thank you, Michael.

New York, NY, USA

Lawrence V. Gulotta, MD
Edward V. Craig, MD, MPH

Contents

1 Pathophysiology of Rotator Cuff Tears	1
Trevor P. Scott, Adam Z. Khan, and Frank A. Petrigliano	
2 History and Physical Exam	23
Lawrence V. Gulotta	
3 Imaging of the Rotator Cuff	31
Gabrielle P. Konin	
4 Nonoperative Management: Natural History, Medications, and Injections	53
Bashar Alolabi and Eric T. Ricchetti	
5 Arthroscopic Treatment	67
Anthony Ho and Andrew S. Neviasser	
6 Biologics and Patches	81
Phillip N. Williams, Jaydev B. Mistry, and Joshua S. Dines	
7 Latissimus Dorsi Tendon Transfer	91
Moira M. McCarthy and Russell F. Warren	
8 Pectoralis Major Tendon Transfer	101
Jeffrey D. Boatright, Austin J. Crow, and Stephen F. Brockmeier	
9 Hemiarthroplasty	121
Seth C. Gamradt	
10 Reverse Total Shoulder Arthroplasty	129
Phillip N. Williams and Edward V. Craig	
11 Treatment Algorithm for Patients with Massive Rotator Cuff Tears	143
Brian Grawe and Lawrence V. Gulotta	
Index	159

Contributors

Bashar Alolabi, MD, FRCSC Department of Orthopaedic Surgery, Sunnybrook Health Sciences Centre, Toronto, ON, Canada

Jeffrey D. Boatright, MD, MS Department of Orthopaedic Surgery, University of Virginia Medical Center, University of Virginia, Charlottesville, VA, USA

Stephen F. Brockmeier, MD Department of Orthopedic Surgery, University of Virginia, Charlottesville, VA, USA

Edward V. Craig, MD, MPH Professor of Cumor Surgery, Weill Cornell Medical School, New York, NY, USA

Attending Surgeon, Hospital for Special Surgery, New York, NY, USA

Austin J. Crow, MD Department of Orthopedic Surgery, University of Virginia, Charlottesville, VA, USA

Joshua S. Dines, MD Sports Medicine and Shoulder Service, Hospital for Special Surgery, New York, NY, USA

Department of Orthopaedic Surgery, Weill Cornell Medical College, New York, NY, USA

Seth C. Gamradt, MD Department of Orthopaedic Surgery, Keck School of Medicine of University of Southern California, Los Angeles, CA, USA

Brian Grawe, MD Sports Medicine and Shoulder Service, Hospital for Special Surgery, New York, NY, USA

Lawrence V. Gulotta, MD Sports Medicine and Shoulder Service, Hospital for Special Surgery, New York, NY, USA

Department of Orthopedic Surgery, Weill Cornell Medical School, New York, NY, USA

Anthony Ho, MD Department of Orthopaedic Surgery, George Washington University Hospital, Washington, DC, USA

Adam Z. Khan, BS Department of Orthopaedic Surgery, David Geffen School of Medicine at UCLA, Los Angeles, CA, USA

Gabrielle P. Konin, MD Department of Radiology and Imaging, Hospital for Special Surgery, New York, NY, USA

Department of Radiology and Imaging, Weill Cornell Medical College, New York, NY, USA

Moira M. McCarthy, MD Sports Medicine and Shoulder Surgery, Hospital for Special Surgery, New York, NY, USA

Jaydev B. Mistry, BA Rutgers New Jersey Medical School, Newark, NJ, USA

Andrew S. Neviasser, MD Department of Orthopaedic Surgery, George Washington University Hospital, Washington, DC, USA

Frank A. Petrigliano, MD Department of Orthopaedic Surgery, UCLA David Geffen School of Medicine, Los Angeles, CA, USA

Eric T. Ricchetti, MD Department of Orthopaedic Surgery, The Cleveland Clinic, Cleveland, OH, USA

Trevor P. Scott, MD Department of Orthopedic Surgery, UCLA Santa Monica Orthopaedic Center, Santa Monica, CA, USA

Russell F. Warren, MD Department of Orthopaedics, Hospital for Special Surgery, New York, NY, USA

Phillip N. Williams, MD Department of Orthopaedic Surgery, Hospital for Special Surgery, New York, NY, USA