

Deformity Correction in Total Knee Arthroplasty

Arun B. Mullaji
Gautam M. Shetty



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To Shati, Nini, Mom and Dad

Arun B. Mullaji

To Priyanka. Thank you for everything

To my Parents for their inspiration, guidance and patience

To all my teachers

Gautam M. Shetty

Foreword

It is my pleasure and honour to write the Foreword for this book, *Deformity Correction in Total Knee Arthroplasty*, written by Drs. Arun Mullaji and Gautam Shetty. I have long admired their surgical expertise in the management of patients with severe angular deformity.

In 12 chapters, this book gives comprehensive and practical instruction to surgeons in the management of varus and valgus deformity, contracture and hyperextension, stiffness and instability and rotational and extra-articular deformity.

The text begins with advice regarding preoperative planning and ends with postoperative pain management and rehabilitation. Each chapter, when appropriate, includes the application of computer navigation techniques.

This book is clearly written, well illustrated, practical and comprehensive. The technical tips provided are numerous and indispensable to any surgeon who treats patients with the severest of angular deformities and instabilities.

I congratulate the authors on their profound contribution to the field of total knee arthroplasty.

Boston, MA, USA

Richard D. Scott, MD

Preface

With rapid advancement in technology and materials in total knee arthroplasty (TKA), long-term survival and function of the total knee are now more and more dependent on restoring accurate limb alignment, precise component position and optimum soft-tissue balance. Furthermore, a large number of early revisions in TKA are related to causes such as malalignment, malposition and instability.

Correct technique is the key to ensuring optimum function and long-term survival of the knee. This is all the more crucial and challenging to achieve in arthritic knees with severe and complex deformities. Many patients in the developing world present for TKA after years of neglect of their knee arthritis. The number of TKAs being performed in these nations is escalating in exponential fashion. Hence, correction of severe knee deformities forms an important part of TKA for orthopaedic surgeons working in these regions and also those in developed nations occasionally treating such patients.

This book outlines the basic principles of deformity correction in total knee arthroplasty with a special focus on severe and complex deformities. Starting with the initial key step of preoperative planning, this volume goes on to specifically describe how to deal with different types of deformities encountered in patients who undergo TKA. This book is more of a “how-to-do” manual, replete with specific tips on deformity correction in primary TKA rather than an exhaustive presentation on TKA. It does not deal with general issues related to TKA such as anatomy, kinematics, complications and revision surgery which are well covered in standard texts. With a focussed approach to the basic purpose and premise of this book, we have steered clear of controversial debates commonly encountered in TKA. However, with the experience of nearly 10,000 TKAs (including over 3,000 computer-assisted TKAs) behind us, we have distilled the lessons we have learnt with the use of both conventional surgery and computer navigation in TKA to further refine our technique. Hence, several chapters in this book have a concluding section describing the technique of deformity correction using computer navigation.

This book is aimed at orthopaedic surgeons and joint replacement surgeons who need to understand the principles of deformity correction especially in arthritic knees with severe and complex deformities before embarking on TKA (whether conventional or computer assisted) and will be useful in fine-tuning their planning and surgical technique.

We are grateful to Dr. Richard Scott, MD, a teacher, researcher and pioneer in the art and science of joint replacement surgery, for writing the foreword.

We thank Dr. Fahad Shaikh, DNB Orth (fellow in Joint Replacement Surgery, Breach Candy Hospital, Mumbai, India), for helping us obtain clinical and radiographic images of patients. We thank Dr. Vipul Chavda, BPT, MPT (Sports Medicine), Consultant Physical Therapist, Prakruti Sports Science & Physiotherapy Clinic Pvt. Ltd., Mumbai, India for providing clinical images for the Postoperative Rehabilitation section of Chapter 12. We also would like to thank the associate editor Kristopher Spring and the developmental editor Kevin Wright for their invaluable assistance in the preparation and publication of this book.

Mumbai, India
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Part I

Preoperative Planning and Basic Technique of Total Knee Arthroplasty