A user's guide to computer-assisted total knee replacement

By J. M. Sikorski

Pp. 115. Perth: CASWA Pty Ltd, 2005. ISBN: 0-97582-140-7. £9.

This little book aims to inform its readers about the current advances in computer-assisted total knee replacement. The first two chapters discuss what constitutes a 'perfect' total knee replacement and how this goal was achieved before computer-assisted surgery. The following three chapters explain how computer-assisted surgery is performed and how it may improve primary total knee replacement. The limitations of computer surgery are described in four subsequent chapters related to revision surgery, minimally-invasive surgery and the current outcomes of computer surgery. The financial aspects and the future of computer assistance are presented in the last two chapters.

It is difficult to write a book on such an unstable field in which evolution is so fast and so dependent on technology which is not under the control of surgeons. However, there is much information for the beginner and for the surgeon who simply requires an overview of this subject. Some important information is lacking since the author focused on only one system and a broader view is required. Image-based systems, other methods of localisation, such as electromagnetic, have not been discussed.

This book will, however, inform surgeons on what a navigation system might achieve in their current practice.

R. Nizard

Severe traumatic defects of the upper limb

Edited by A. C. Masquelet and A. C. Ferreira

Pp. 333. London: Martin Dunitz, 2003. ISBN: 1-84184-243-5. £85.

Modern experience in traumatology has concentrated on the leg, largely because manual industry is in decline. In fact this trend is more relevant to the developed, rather than to the developing world. Furthermore, the function of the upper limb is so much more precious (and economically priceless) than the leg which can be, and often is, amputated with impunity.

The authors have chosen their title precisely and defined a severe traumatic defect as one in which restoration (of function) of the injured structures cannot be performed without employing a palliative procedure, which may raise more questions than it answers. Certainly direct, primary intention, end-to-end repair is not possible.

The editors have separated the tissues to be considered: bone, nerve, blood vessels, muscle, tendons and perhaps most importantly, but never in isolation, skin. Viewpoints vary between orthopaedic and plastic surgeons as to whether fractures should be

fixed in order to preserve the overlying wounded skin, or the wound closed in order to protect the bone. The object in either case, however, is the same - the restoration of function which is prehensile rather than weight-bearing as in the case of the leg.

Page seven starts with a 50-page chapter on flap techniques, some basic; many of great ingenuity and of priceless value to the orthopaedic trainee who rarely receives good instruction in this art. Confrontation with the fresh, compound fracture is no time to turn to the book for the essential, golden hour, emergency techniques. Bone comes next with 40 pages debating the various techniques of replacing actual missing pieces, lost for one reason or another. These are not comparative assessments between various techniques, free graft, vascularised transfer, bone substitutes, etc - but definitions of the situations in which each is apposite. The 30 pages on joint reconstruction introduce a different dimension and cover total prosthetic replacement, joint transfer and arthrodesis. There are 40 pages on direct repair of nerves and interpositioning techniques of vital importance to the outcome in the paralysed limb. This section contains material which will be new to most of us.

Tendon damage and loss are more familiar problems. Here are 50 pages of grafting with vascular pedicles, and techniques to preserve sliding movement within damaged soft tissue. Finally, compound tissue transfer covers massive autogenous transpositioning of muscles, tendons, skin and bone as integrated, living constructs.

Curiously it is not until page 300 that 'General Indications: principles of emergency reconstruction' is addressed, but perhaps the crude requirements are a pre-requisite to read the book in the first place. The editors here are assessing the many and varied operations, not all of which have survived the test of time, in emergency surgery. Finally, future thoughts, experimental techniques and late palliative procedures round off a book of priceless value to traumatology.

This is a book of such far-reaching importance to the whole of surgical biology as to be essential reading for those with interest and ambition for the future of orthopaedic traumatology. It is not for the reference shelves of surgical theatres, but for the home of every surgeon actively involved in trauma. It is not a practical manual, but a work of surgical philosophy to be read from cover to cover with messages which will mould the mind of the emergency surgeon. It cannot be too warmly recommended.

M. Laurence

Shoulder and elbow arthroplasty

Edited by G. R. Williams Jr, K. Y. Yamaguchi, M. L. Ramsey and L. M. Galatz

Pp. 544. Philadelphia: Lippincott, Williams & Wilkins, 2005. ISBN: 0-78173-853-9. \$179.

The editors of this book are known for their special interest in the field of shoulder and elbow surgery. They have 'recruited' a cohort of experts to assemble this text, aiming to spread the principles of

shoulder and elbow arthroplasty as widely as possible. The contents can be categorised according to each joint. The structure and the organisation of each division is similar; there are three sub-sections: prosthetic implants, surgical technique and disease-specific considerations.

The history and development of shoulder arthroplasty is covered in an excellent review of the anatomical, biomechanical and prosthetic considerations essential for an understanding of the subject. The chapter on humeral replacement, written by the two European surgeons who have influenced the philosophy of shoulder prosthetic design, emphasises humeral head osteotomy and introduces the reader to the concept of 'bony balancing' as complementary to 'soft-tissue balancing' in order to achieve a greater range of post-operative movement. In the 12 chapters on disease specifics, the reader is presented with the special conditions for which a shoulder replacement is indicated. There follows an overview of the major causes of glenohumeral arthritis, highlighting the clinical and radiological findings in each aetiology. The subsequent chapters refer separately to replacement arthroplasty for specific conditions.

In the chapter addressing the surgical management of the arthritic shoulder with a deficient rotator cuff, the reader is presented with the information necessary to evaluate the different treatment options, to define the indications for surgical management and to establish a decision-making algorithm. The treatment of patients who develop arthritis of the shoulder after surgery for instability or chronic dislocation, is adequately presented in sequentially separate chapters. Their study offers solutions for the surgeons who manage these difficult cases by digesting the experi-

ence from famous clinics and worldwide authorities. Revision arthroplasty of the shoulder is covered thoroughly and some future directions are suggested. The shoulder section is completed with chapters that discuss replacement in tumour cases, touch on their complications and specify post-operative rehabilitation.

The modern era of elbow arthroplasty was initiated in the early 1970s, later than that for the shoulder and continues to evolve. The first three chapters of the section on implant selection globally cover the history and the development of total elbow arthroplasty and the anatomy and biomechanics of the arm. Surgical technique is discussed separately, contrasting the linked with the unlinked prostheses. The indications for the use of an implant are described with regard to various pathological conditions, with much detail on both the surgery and the rehabilitation.

In the nine chapters in the section on disease-specific considerations, the reader is presented with an overview of the major causes of arthritis of the elbow and a systematic approach to examination of the elbow. The subsequent chapters refer separately to an elbow replacement in differing conditions. In the chapter on replacement arthroplasty for acute fractures, replacement of the isolated radial head, in trauma cases, is curiously omitted.

In summary, this volume emphasises the value of experience with regard to shoulder and elbow arthroplasty. The contributions are comprehensive, well illustrated, up-to-date and to the point. It is highly recommended for all orthopaedic surgeons who manage arthritic shoulders and elbows and it will be helpful to all practising orthopaedic surgeons and their residents in training.

G. Kontakis