Internal fixation in osteoporotic bone

Yuehuei An (ed), 375 pages, Thieme Verlagsgruppe 2002
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Many textbooks have been written about the treatment of fractures. Numerous annual orthopedic meetings, courses and congresses, take place in which the optimal treatment of ortho-trauma is discussed. Most discussions at meetings and in textbooks deal with fracture fixation in good bone. Historically, fracture implants have been produced to treat fractures originating in good bone-stock.

During the past decades, fractures in the elderly have increased in frequency and severity. A need for stable internal fixation of these fragile fractures and patients has developed. Considering the vast number of fragile fractures in any orthopedic unit in Europe or North America, surprisingly little has been written about osteoporotic fractures (OF).

"Internal Fixation in Osteoporotic Bone", edited by Yuehuei An, and published by Thieme, is an attempt to collect the current knowledge of implant fixation in osteoporotic bone.

The editor has assembled a number of well-known scientists and orthopedic surgeons with a special interest in OF. The book also covers a broad field of topics, related to OF in particular, but also to fracture treatment in general.

It has a well-written section discussing the biology and biomechanics of osteoporotic bone, fracture healing and implants and on techniques of densitometry. This chapter is easy to read and serves as an epitome for the clinician.

Even more interesting and useful is the chapter on current clinical techniques. The most devoted trauma surgeon will find that this chapter presents news and ingenious ways to utilize standard implants. Various plate and screw designs are described, some historical, but also the most recent methods used in current clinical practice. The historical background of the recently launched locking compression plate is discussed, and information is given about the Polish Zespol plate and Schuli nuts, which are probably not known to the general orthopedic community.

Various techniques for augmenting OF and pathological fractures with bone cement are thoroughly described. One chapter is also devoted to Norian SRS, a biodegradable material with physical and chemical characteristics resembling the mineral phase of bone. This material is injected into fractures or metaphyseal areas lacking bone to augment structural bone deficits. However promising the clinical and experimental results, the authors admit that the mechanical properties of this material in bending and torsion should be improved.

During the past decade, the views about fixation technique have swung from the rigid traditional technique taught in AO- manuals and courses to so-called biological fixation. Although not clearly defined, this technique aims at indirect healing with callus formation in complex fractures, using long plates and a limited number of screws. This book discusses all these principles and relates them to osteoporotic fractures.

Traditional fixation techniques of plates, such as anti-glide and buttress plates, are discussed as well as more modern features, such as the dorsolateral anti-glide plate in ankle fractures.

Fractures of the spine are discussed in 3 chapters dealing with various fixation techniques, vertebroplasty and traditional pedicle screws, but also new methods, including the self-guided pedicle screw and the interlocked pedicle screw, which have not yet been introduced into clinical practice.

Although I am especially interested in ortho-trauma, I must admit that this book describs some new ideas and inventions, previously not known to me. Some of these will probably not materialize into tools for clinical practice.

However, numerous suggestions and clever maneuvers should prove useful for the orthopedic clinician in daily practice.

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