MIS techniques in orthopedics

Giles R Scuderi, Alfred J Tria, Jr., Richard A Berger (editors), 438 pages, Springer Verlag 2006
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Minimally invasive technique in orthopedics is an evolving field and is gaining a great deal of interest among surgeons, and perhaps even more among patients. This concept started in the early 1990s when Repicci introduced the technique for unicompartmental knee replacement, where a significantly less invasive surgical procedure resulted in less postoperative morbidity and faster rehabilitation. Different techniques and modifications of instruments followed for the hip and for total knee replacements, and today most manufacturers offer these options.

Now, Springer has released this book, MIS Techniques in Orthopedics, edited by three renowned surgeons in the field, in an attempt to introduce, summarize and evaluate the MIS technique. The result is a mixture of different procedures and the quality is quite variable. One of the main problems is the definition of what MIS really stands for. The fact that the skin incision is made a few centimetres shorter can hardly be the criterion that qualifies a surgical procedure as an MIS technique. Some of the chapters in this book have difficulties in recognizing this.

The book covers, in four sections, the shoulder, the elbow, the hip and the knee. The MIS technique has already been used for the hip and knee for quite a while, and most interested surgeons are already familiar with the concept, whereas the MIS technique for the shoulder and elbow may be less well known. The fifth section covers computer-guided hip and knee surgery.

The first section consists of 6 chapters, 4 on shoulder surgery and 2 on elbow surgery. The chapter on the Bankart procedure is a comprehensive description of shoulder instability, physical examination and surgical treatment. Except for the positioning and length of the skin incision, however, the MIS technique does not differ much from the standard procedure. Also, the description of MCL repair in the elbow is mainly a modification of a ligamentous repair, but is otherwise the same surgical procedure as before. This shows the difficulty of trying to define the difference between MIS and standard technique.

The chapter on mini-open rotator cuff repair is well written. Percutaneous pinning of valgus impacted proximal four-part humeral fractures is also nicely presented and easy to follow. The most difficult step is the right fracture selection, and there will always be a possible need to invoke open surgery.

Finally, the MIS technique for shoulder joint replacements is also discussed. One important indication for a smaller incision seems to be cosmetic, but at the same time replacement of the shoulder most often includes meticulous soft tissue release and balancing. These goals cannot easily be combined. This technique is still at the developmental stage and the clinical need for it still has to be proven.

The section on hips describes mainly 4 approaches with the MIS technique. The surgical procedures are extremely detailed and may be useful to the experienced surgeon. One problem is the rapid advancement in this field; procedures are developed but go out of fashion quite quickly. The two-incision approach, for example, which has given excellent results in the hands of Berger, the master of this technique, has not been successful in the hands of others. Quite a number of complications have been encountered and the technique has been abandoned in most centers, at least in Europe. The anterior approach in the supine position, as originally described by Judet in 1947, is interesting to read from a historical point of view. It will probably not become a widely used technique, though, because of the unfamiliarity with the patient positioning and the need for a special, expensive operating table.

The parts dealing with the knee consist of 5 chapters on unicondylar prostheses and 5 on total knee

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replacements. The concept of MIS became familiar to most surgeons when the unicompartmental knee replacement was performed by this technique in the early 1990s. This was a significant step forward in replacing knees; it made a great difference to patient satisfaction and accelerated mobilization. The chapters on unicondylar arthroplasty are easy to appreciate, but it is difficult to justify 3 chapters describing the same implant, only with some modification of the instrumental technique. There is also a questionmark over the chapter on the Unispacer and the relevance of including this technique in the book. The concept is old—originating from the MacIntosh procedure—and has always been controversial. To my knowledge, this implant is not accepted for clinical use on a regular basis in Europe. The chapters on total knees are generally of a high standard, and cover different approaches to the knee.

The last section on computer-assisted surgery in hip replacement and knee arthroscopy is interesting, and reports techniques that will probably have increasing potential in the future.

The illustrations in the book are all photographs and drawings in black and white. Many of the photographs have been taken through small incisions, and are thus difficult to see and understand. Many other pictures are blurred and of poor quality. I miss more descriptive, schematic pictures, as used in some of the knee chapters, and also color photographs.

MIS is a hot—and controversial—subject today, and books on this technique are to be expected and certainly welcome. In this edition not much is mentioned regarding possible complications, which we know exist and must be recognized. These techniques have a steep learning curve. One of the keys to successful surgery is the importance of exploring the surgical field enough to see what we are doing. Now we tend to put that key away and perform surgery through the keyhole instead! But the important events in MIS are taking place under the surface and not only depend on the length of the skin incision. The outcome of this technique is not only a consequence of the surgery itself but also of how we treat the postoperative pain. This issue is addressed only briefly in this book. Postoperative pain is an integrated part of the surgical trauma, but is not directly correlated to size of the skin incision. (A 5-cm skin incision may not necessarily hurt half as much as a 10-cm incision!) Technical refinement to cut down the surgical trauma is important to minimize the functional loss, but does not relieve the pain. Thus, in order to improve outcome, and to minimize pain and speed up recovery, a combination of efficient pain relief and a gentle, muscle-sparing surgical technique appears to be the best solution. To me, that is the definition of minimally invasive surgery.

The editors state that the target groups for this book are orthopedic surgeons, residents and fellows. I do not agree. This book will be useful mainly to experienced surgeons who want to embark upon minimally invasive surgery.

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