Pierre Lascombes: Flexible intramedullary nailing in children: the Nancy University manual

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Pierre Lascombes and the Nancy University Orthopedic Faculty are synonymous with the concepts, principles, and practice of fracture care using flexible intramedullary nailing (FIN), also known as elastic stable intramedullary nailing (ESIN). Thus, the publication of this book in English (a translation from Professor Lascombes’ 2006 publication in French) has been long awaited, and proves to be an outstanding and invaluable contribution to the orthopedic literature.

The foreword by Jean-Paul Metaizeau, MD, a pioneer in these techniques and a colleague and mentor of Professor Lascombes, states that the goal of this book is “...to be an educational tool with lots of figures to illustrate all the indications (and contraindications) of ESIN, delivering hints and tips and emphasizing pitfalls to assist surgeons in achieving optimal construct for each type of fracture.” That is, indeed, the essential substance of this book, and, yet, it is both more and less.

As a manual of a surgical technique, there is none better. It is beautifully illustrated in a format that is easy to read and understand. However, it must be read as a technical manual; a near-perfect handbook of directions. It is not a text on fracture management. The novice reader, while learning how to perform these techniques better and with fewer complications, must keep in mind that there is little discussion about when to treat children’s fractures operatively and when to treat them non-operatively, nor is there much about other options for fracture fixation. Comparative effectiveness is not the goal of this book. Comparison of FIN to other techniques is discussed only superficially.

This should not be interpreted as the authors’ refutation of alternative management strategies. They are simply writing about what they do and what they know best.

The book is divided into three parts: General Considerations, Techniques, and Other Indications. We will review each section individually, but we hasten to add that, on the whole, this is a most enjoyable book to read. The book is illustrated with precise and clear diagrams and for the visual learner (as are most orthopedic surgeons), this is an aspect of the book that could not be surpassed. The use of both clinical vignettes and sharply reproduced X-rays capture the orthopedic surgeons’ way of thinking and remembering.

Part I: General Considerations Some of the initial discussion of biomechanics and experimental models was a bit difficult to follow. Perhaps it was, to some extent, lost in translation, and we wish that we were more fluent in French in order to read the original source material. Nonetheless, we felt that there was some selective use of references and an effort to support with better evidence what really amounted to expert opinion. While much of the science is sound, and we know that the procedures work, the biomechanical foundation is presented as an admixture of science, experience, and theory.

A particularly commendable chapter in Part I is “Stainless Steel or Titanium?” The frank discussion of the value of titanium versus stainless steel, and the criteria upon which one might base the decision to choose one over the other, was balanced and very much appreciated. Likewise, the chapter that follows, “Surgical Technique: Basic Principles” made simple and clear recommendations for selecting the diameter of the intramedullary nail, and for the careful reader, presented an approach that would eliminate the complication of “too thin a nail” or one that is sub-optimally contoured.

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From a global perspective, the chapter “FIN Without Image Intensification” details the use of flexible intramedullary nails in remote settings without X-ray support. It demonstrated the universality and adaptability of these techniques. One of the reviewers (NCV) can offer personal experience with FIN in rural Third World venues. The technique is both invaluable and reproducible. Might we request that, in future editions, this section be expanded to more than a few pages?

Part II: Techniques This section is why the reader bought this book. The introduction to each chapter in Part II includes a quick review of the character and mechanics of the particular fracture. This proves to be a discussion of incredible value, irrespective of the management that the surgeon eventually chooses to follow. The presentation of FIN techniques was extremely helpful, clear, and concise. Each chapter discusses the technical aspects in scrupulous detail. It not only beautifully illustrates the surgical procedure step by step, but it also details the pitfalls and the poor outcomes that will result when these precise techniques are not followed meticulously. In each chapter, the reader will find sub-sections whose excellence separates this fracture book from all others with which we are familiar. For example, the section entitled “Case Reports.” Each specific fracture technique chapter concludes with several case reports accompanied by excellent imaging. The inclusion of complications and failures in many of these case reports was very even handed and provided insights into the limitations of the technique, and, most importantly, bailouts if surgery begins to go awry. Most surgeons, early in their careers, can figure how to perform a given operation. It is figuring out what to do when it goes badly that presents the greater challenge, and this book is exceedingly helpful in that regard. Indeed, in our estimation, this is probably the most tangible strength of the entire manual. Each chapter concludes with a set of tables and figures. In actuality, these are three mini-summaries that, while remarkably brief, are, at the same time, astonishingly precise and packed with information. They are entitled: (1) Six Key Points, (2) Postoperative Management in the Absence of Complications, and (3) FIN Indications.

Our only real concern with Part II: Techniques is that there are some aggressive indications that are presented as being somewhat routine. For example, the use of FIN seems unnecessary to treat supracondylar fractures of the humerus or a radial neck fracture. To the author’s credit, FIN is discussed in this context as but one option among others. Inasmuch as this is a FIN technique manual and not

a textbook of fracture care, it is reasonable to argue that Lascombes’ colleagues are merely presenting the technique and not judging its relative merits. However, statements like “Among all the treatment options that are currently available for radial neck fractures, intramedullary nailing is the ‘gold standard’...” do not lend themselves to that argument. Similarly, I think that this book stands proudly on its own merits, and even a casual reader will come to appreciate the excellent technical advice. Therefore, the abundant use of qualifiers touting FIN as “the best choice” or the “ideal construct” is a bit self-serving. For the highly experienced trauma surgeon, “the best choice” remains subject to interpretation and opinion. We hasten to add that these criticisms should be put aside when the scope of the Techniques section is appreciated in its entirety.

Part III: Other Indications In this section, the author presents interesting chapters on the use of FIN in osteopenic bones such as children with osteogenesis imperfecta, in bone tumors, in cerebral palsy, and in metabolic bone disease such as rickets. This section was both interesting and intellectually stimulating. It is a testimony to the authors’ ingenuity, imagination, and thoughtfulness. Although we do not think that all of these indications will find their way into the routine armamentarium, we were glad that they were included and have prompted some thought on our part. For example, the use of FIN in conjunction with osteotomy in cerebral palsy and the hypothesis that this technique will preserve strength postoperatively and, thus, limit functional declines that follow multi-level surgery. We will be interested to learn the results of the pilot study to which the authors refer. While challenging current practice and written in a way that creates an irresistible urge for surgeons to just try it, the reader must maintain a critical eye while considering what some might call “off-label” indications.

Finally, we can unequivocally state that your reviewers loved this book for both what it is and for what it is not. In the spirit of complete transparency, one of the reviewers (MJG) received a warmly inscribed copy of Flexible Intramedullary Nailing in Children, and so it was with some deliberateness that all efforts were made to eliminate bias and cast a critical eye on both content and style. Our review, nonetheless, must conclude that a hard-cover copy of this book belongs in the library and in the operating theater of every pediatric orthopedist and every trauma surgeon. The reader, whether a novice or an acknowledged expert, will find that regularly referring to this text will improve patient outcomes.