Failed Fracture Fixation

Peter V. Giannoudis • Paul Tornetta III
Editors

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Revision Surgery Made Easy

Springer

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Peter V Giannoudis
Dedicated to my wife Rania and my children Marilena and Vasilis for their love, patience, and support throughout my career.

Paul Tornetta III
To my mother, Phyllis, who found the best in people, had compassion for all, and whose insight, guidance, and love have always made me believe that anything is possible.

Preface

Bone fractures continue to be a global public health issue. The global burden of disease study 2019 (CGD 2019-https://ghdx.healthdata.org/gbd-2019/data-input-sources) reported that in 2019 the prevalence of fractures in all age groups was 455 million worldwide. These primarily affected the appendicular skeleton.

While many fractures can be managed non-operatively, others require fixation to prevent malunion, allow early range of motion, prevent the so-called fracture disease and facilitate early hospital discharge.

Operative fixation includes external fixation, intramedullary nailing, plates and screws, and combinations of these. Each of these options is considered based on the fracture type, anatomical location of the fracture, and patient characteristics (profile).

Despite every surgeon's best intention to achieve optimum fracture fixation and an uneventful healing outcome, failed fixation can occur. While the true incidence of failed fracture fixation is unknown, it varies between different anatomical locations, and its incidence is thought to range between 0% and 15% of operated cases. When a surgeon designs the fracture construct and applies it in the operating room, the race begins between union and fixation failure. The surgeon essentially decides what the mode of fixation failure will be based on the construct applied.

Failed fixation requires revision and that brings additional risks for the patient. In addition, planning and executing revision surgery is more challenging than the initial surgery. It requires an understanding of the failure mode, the mechanics of the injury, and biology of the region.

In this textbook, every chapter describes how to successfully address failed fixation in different anatomical sites with different implants. From the conception of this project, the aim was to help clinicians get experience in this thought process by real examples.

Each chapter provides the reader with the aetiology of failure (why the fixation failed), what kind of investigations would be necessary to formulate an appropriate pre-operative plan, what instruments are needed for removal of the failed implant, what new implant should be used, how the revision surgery should be carried out successfully, and whether any type of bone grafting would be needed.

We hope the book will help in the decision-making process and in the selection of the appropriate implant and surgical technique not just surgeons in training but also qualified orthopaedic surgeons in their busy practice.

We are grateful to all the contributors to make this project possible, and we hope this textbook will be another reference book in the practice of surgeons to improve patient care and clinical outcomes.

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