Preface

Complex Upper Extremity Reconstruction

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Despite the advancements in our modern world, people continue to fall victim to events that result in extensive trauma to their upper extremity. Throughout time, a combination of high-risk behaviors and jobs have created a nonstop demand for treatment from those who suffer from upper extremity loss of parts or function. This demand is further exacerbated in our current society as crime rates continue to rise, assault weapons remain widely available, and wars are waged internationally. The end result is the tremendous burden on an individual's life and society as a whole, thus making treatment a necessity.

Mangling injuries and complex trauma to the upper extremity are devastating as they include multiple critical components including nerves, bone, tendons, ligaments, or loss of soft tissue coverage. Wounds are frequently contaminated and perfusion is limited. Management of such injuries poses a more complex challenge than a simplistic approach to each individual component in the conventional fashion. Reconstruction of each injured component would only be meaningful in context of restoration of other components and the overall function of the extremity. Extent of injury may necessitate vascularized bone or soft tissue flaps, while the most appropriate technique for tendon or nerve reconstruction is attempted. Although a

sophisticated reconstruction may be the right choice for one patient, amputation may be the answer for another. At the same time, advancement in myoelectric prosthesis technology and development of targeted muscle reinnervation allow for life after amputation. Finally, instituting an appropriate rehabilitation regimen following reconstruction of a mangled upper extremity serves as a crucial step in carrying the goal of reconstruction to reality.

This issue of *Seminars in Plastic Surgery* is dedicated to important aspects of the management of complex upper extremity trauma. Although an overall algorithm is suggested, the reconstruction of challenging osseous, tendinous, or neural injuries is discussed separately by contribution from experts in the field. Additionally, a review of combat injuries to the upper extremity and the lessons learned are presented. Similarly, amputation, prosthetic options, and advancement in this area, as well as rehabilitation, are further elaborated. Our goal is to allow the reader to find such complex injuries less perplexing and to approach them in a more systematic fashion.

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