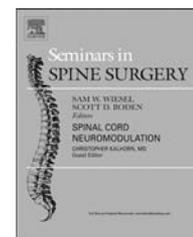
Available online at www.sciencedirect.com
www.elsevier.com/locate/semss

Introduction

Mark Twain once wrote, “The secret to getting ahead, is to get started.” Yet, whether early in one’s career or more experienced, implicit in a spine surgeon getting started (in career or a case) is an agreement to manage both expected and unexpected complications to improve the lives of our patients. At times the impact and management of a peri-operative complication can appear an insurmountable task, but direct and skillful action can often lead to as favorable an outcome as if it had never occurred. So, as echoed in the next clause of the quote, “The secret of getting started is breaking your complex, overwhelming tasks into small manageable tasks, and then starting on the first one.”

Complications occur for a variety of reasons, such as technical factors, patient anatomy/morbidities, and the complexity of the pathology being treated. Advances in surgical techniques and instrumentation over the past two decades has led to more patients becoming appropriate candidates for spine surgery. Along with an increasingly aged population, it is not uncommon to have more elderly patients in their 70’s and 80s take advantage of many of the benefits of spine surgery. Often, they are predisposed to complications. One study from the *Journal of Bone and Joint Surgery* in 2011 reported 7.6% of patients experience complications within 30 days after spine surgery, with increasing age and surgical wound problems both increasing the risk of complications and of death. And, while minor complications tend to be less impactful on surgical outcome, several major complications (e.g. sepsis, unplanned returns to the operating room, and DVT/PE) can have a profoundly negative impact on patients’ quality of life and surgical outcomes. In a value-based health care system, these adverse surgical outcomes due to complications are costly to patients and society, shifting the cost per QALY value equation away from its primary offering. The surgeon’s best defense against this, and the patient’s greatest chance at success, depends on how well a complication is identified and managed.

Unlike the traditional practice of spine surgery, where doing more cases typically leads to technical expertise and

fewer chances of adverse events, one cannot hope to become an expert at managing complications by repetition. Rather, high-level complication avoidance and management should come through careful delivery of a well thought-out, sometimes arduous, surgical plan.

This issue reviews the management of some of the more familiar spine surgery complications, such as dural tears, cervical spine complications, and infections; but also reviews current management strategies for unexpected or nuanced complexities such as vascular complications, PTSD (post-traumatic stress disorder), and cementation issues. We have also discussed spine surgery complications in the context of volume-outcome and training, an extremely relevant topic as we move forward with resident training in a limited work hour environment, and personal training on newer techniques and technologies. As no two complications are alike, we hope these articles serve as guides to developing patient-specific algorithms for complication management, regardless of how difficult or elusive. Even some of my most difficult to manage cases and complications have led to surprisingly good results. Finally, it has been said “nothing easy is worth doing”, which may be best summed up in another quote:

“Nothing in the world is worth having or worth doing unless it means effort, pain, difficulty... I have never in my life envied a human being who led an easy life. I have envied a great many people who led difficult lives and led them well.”

– Theodore Roosevelt

R. Todd Allen

Department of Orthopaedic Surgery UC San Diego Health System,
San Diego, CA, 92037, United States
E-mail address: rtallen@health.ucsd.edu

<https://doi.org/10.1016/j.semss.2019.100750>
1040-7383/© 2019 Published by Elsevier Inc.