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## Lessons to Be Learned: Case Reports and Complications

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## EDITOR'S PAGE



## Lessons to Be Learned

### Case Reports and Complications



John Lawrence, MD, David L. Fischman, MD

**N**onmaleficence is one of the most basic principles of medical ethics and a concept that is inextricably linked to the practice of medicine. From the earliest onset of medical training, we are emphatically and justifiably taught that we must avoid doing harm to our patients above all else. Indeed, physicians must approach clinical decision making in a thoughtful manner, recognizing that all medical treatments carry some potential for harm, and accordingly should be pursued only if the benefits outweigh the risks and the result will have a meaningful impact on patient care and clinical outcomes. At the same time, it is important to acknowledge the fact that medical errors and, importantly, complications are an integral part of the learning. Oftentimes, failure has the potential to teach us even more than success.

Thus, in medicine, it is often difficult to reconcile our feelings of aversion toward errors and adverse events, with the undeniable educational value that comes from these experiences. Moreover, it is critical to recognize that, irrespective of one's experience, intelligence, dexterity, and other innate abilities, no one is exempt from experiencing a complication regardless of whether or not this was related to a mistake. Complications can occur not only at the hands of novice physicians just out of residency or fellowship but by physicians experienced in the field. As Alexander Pope famously wrote in *An Essay on Criticism*: "to err is human" (1).

This seemingly dichotomous relationship between avoiding complications at any cost, while

simultaneously appreciating the valuable lessons that they can provide, is especially present in the field of cardiology. In fact, there are many excellent examples in the literature where cardiologists have discussed the immense task of dealing with bad outcomes (2,3). Regardless of the subspecialty in question, cardiologists treat some of the sickest, highest acuity patients in clinical medicine. This simple fact frequently creates a recurring high-stakes scenario wherein a critically ill patient requires an invasive procedure, in which even the most seemingly trivial of mistakes can lead to an absolutely catastrophic outcome.

Procedural complications in interventional cardiology represent arguably the most feared type in which the intended intervention has the potential to cause pathology far worse than the disease it is addressing, not to mention death. Interventional cardiology continues to experience a rapid growth of novel percutaneous transcatheter therapeutics to treat an expanding population of patients advanced in age with numerous comorbidities. Where once a 90-year-old patient with severe symptomatic aortic stenosis would not be considered a candidate for surgical treatment, they can now successfully treat with a catheter-based approach. Accordingly, the advent of these innovative invasive procedures is both compelling and inspiring, it comes with the prospect of many potential procedural complications in a high-risk patient population. Although complications are typically rare from a proceduralist's perspective, on a time scale they can also be viewed as inevitable. The simple fact of the matter is if you do enough procedures, sooner or later, you will experience a complication.

As psychologically stressful and traumatizing as they may be, procedural complications often provide a valuable learning experience. Following a complication, one should always ask, "how can I prevent

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this in the future?" One should take time to debrief and reflect on the events that transpired (4). After identifying the root cause of the event, one can strategize ways to make the necessary changes to prevent such from happening again. Rectifying such an occurrence can consist of anything from working to improve relevant clinical knowledge deficits and procedural skills, to implementing appropriate institutional policies to ensure patient safety. Furthermore, it is important to take time to discuss complications with trusted, experienced mentors in the same field. More experienced proceduralists have no doubt been in similar situations and can share their wisdom. One cannot overstate the importance of peer review and peer support in whatever format that may be (5).

Probably one of the most important and often underappreciated means to learn from our complications is to publish them. Although often thought of as a means to share educational experience of both rare and new diseases, case reports have become an excellent tool to share experiences in the practice of medicine and in particular Interventional Cardiology. Case reports are an excellent vehicle to disseminate knowledge regarding new or innovative treatments for "old" diseases and, importantly, complications, both novel and not so novel, related to these therapies. In this issue of *JACC Case Reports*, a number of complications related to interventional procedures,

structural, coronary, and peripheral have been presented. It is with dissemination and discussion of these complications and how they were managed that we may learn from each other.

In medicine, we must come to terms with the fact that perfection does not exist, and complications are an inherent part of training to be a physician. We must remain vigilant to avoid committing mistakes that may lead to complications, but always learn from them when they occur, irrespective of how they occurred. Learning from complications makes you a better physician, and is an integral part of our sacred duty to continuously work to hone and improve our skills in order to help patients. Importantly, learning from other's mistakes and complications is an integral part of our continuing education and importantly should be shared widely to help improve the outcomes for all our patients.

#### AUTHOR DISCLOSURES

Both authors have reported that they have no relationships relevant to the contents of this paper to disclose.

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