Introduction

It is the pursuit of every doctor to cure disease. Our goal as physicians is to make people well. By doing so, we seek to improve the quality of life for all those we care for and in turn for all of the lives our patients touch. It is this pursuit and this goal that are at the heart of medicine. This is why our field is so dynamic and why we as doctors are never satisfied, never complacent, never accepting defeat at the hands of illness. No more so is this true than with the disease breast cancer.

Breast cancer evokes a certain passion like no other amongst clinicians, patients, and the public at large. We as a society rally around the fight to cure breast cancer. Through educational programs, charitable fund raisers, and by wearing “pink,” we support every mother, every sister, every friend who has or ever will have breast cancer in the hopes of finding a cure. We in medicine have embraced this fight and perhaps this is why no area has seen such a dramatic improvement in diagnostic techniques in recent times as breast imaging. Digital mammography, high-resolution breast ultrasound, dedicated breast magnetic resonance imaging, computer-aided detection software, and digital breast tomosynthesis have been developed within the past 10 years or so. The sole purpose of this is to find breast cancer earlier, smaller, and when it is most likely to be curable.

The imaging in some ways has outpaced our ability to understand and take care of what we find. Now that we are able to accurately identify solid masses and groups of calcifications that are “pea sized” what do we do with them? First, we must be able to accurately biopsy them. Minimally invasive image-guided techniques and unique biopsy tools have been developed and continue to be modified and improved. Although surgical lumpectomy still has a role in the diagnosis of breast lesions, it is not the primary method of choice. In the United States alone, more than 1 million breast biopsy procedures are performed per year. Most of these are for benign disease. This is why the development and practice of outpatient, minimally invasive, image-guided breast biopsy performed with a high degree of accuracy is so important.

Now that we have found and biopsied a pea-sized cancer, how should it be treated? Should we continue to remove every cancer surgically? In doing so, are we taking a hammer to this “pea”? At some point several years ago, a physician asked the question, “Are we doing too many radical mastectomies?” And the idea of a simple mastectomy was born. So too the question was asked and answered, “Can we replace a mastectomy with a lumpectomy in certain patients?” Through improvements in imaging and the development of new devices, it is now time to ask, “Can we treat breast cancer without surgery using image-guided techniques?” I am quite confident that in the near future the answer to this question will be, “Yes!”

The purpose of this issue of Techniques in Vascular and Interventional Radiology is to provide a current, practical, and comprehensive guide to breast interventions. An outstanding group of accomplished authors and leaders in the subject of breast imaging and interventions have given their time and talent toward this issue. The content builds from a thorough section on breast anatomy, through interventions in all imaging modalities, to breast ablation and treatment of emergencies of the breast.

This issue is also meant to challenge the reader. If you are currently a breast surgeon, a breast imager, or a diagnostic or interventional radiologist practicing breast interventions, how can you do better? How can you improve your current technique? What new procedures may improve the quality of care for your patients? If you are not practicing breast interventions, then why not? In particular, this applies to my colleagues in interventional radiology whose training and skillset makes them uniquely qualified to perform breast interventions. Many of the techniques described in this issue were researched and developed by interventional radiologists. We are in need of more highly trained physicians in the subspecialty of breast interventions, particularly if we are to begin treating cancers with ablations and other image-guided techniques. It is time that interventional radiology programs around the world add breast interventions to their curriculum and cross-train with highly skilled breast imagers, many of whom are represented in this publication. Through collaboration, both specialties will benefit and ultimately our patients will receive better care.

I would like to thank all of my current and past diagnostic and interventional radiology residents, fellows, partners, and staff for their friendship and comradery. I would like to especially recognize Dr Stephen Baker who introduced me to this amazing field. To my mentors Drs
Jan Durham and David Kumpe, thank you for instilling your knowledge and passion for interventional radiology in me. I would like to acknowledge my friend Dr. Gaojun Teng and all of my colleagues in China who have welcomed me over the past few years. You have inspired me with your skill, your work ethic, and your desire to improve the quality of women’s health. I am honored to share my knowledge with you. I would like to thank my parents Richard and Eleanore, for their sacrifice, encouragement, and love. I owe my greatest thanks to my “inspiration,” my amazing wife Kim and my beautiful, wonderful children Andrew, Elizabeth, and Kenny. Without their love and support, none of this would be possible.

I dedicate this issue to the brave women who are my patients. It is through your eyes and spirit that I find my true strength and passion. Together, we will find a cure for breast cancer!

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