Wilcox's Surgical Anatomy of the Heart

Fourth edition

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Preface

The books and articles devoted to technique in cardiac surgery are legion. This is most appropriate, as the success of cardiac surgery is greatly dependent upon excellent operative technique. But excellence of technique can be dissipated without a firm knowledge of the underlying cardiac morphology. This is just as true for the normal heart as for those hearts with complex congenital lesions. It is the feasibility of operating upon such complex malformations that has highlighted the need for a more detailed understanding of the basic anatomy in itself. Thus, in recent years surgeons have come to appreciate the necessity of avoiding damage to the coronary vessels, often invisible when working within the cardiac chambers, and particularly to avoid the vital conduction tissues, invisible at all times. Although detailed and accurate descriptions of the conduction system have been available since the time of their discovery, only rarely has its position been described with the cardiac surgeon in mind. At the time the first edition of this volume was published, to the best of our knowledge there had been no other books that specifically displayed the anatomy of normal and abnormal hearts as perceived at the time of operation. We tried to satisfy this need in the first volume by combining the experience of a practising cardiac surgeon with that of a professional cardiac anatomist. We added significantly to the illustrations in the second edition, while seeking to retain the overall concept, as feedback from those who had used the first edition was very positive. In the third edition, we sought to expand and improve still further on the changes made in the second edition. In the second edition, we had added an entirely new chapter on cardiac valvar anatomy, and greatly expanded our treatment of coronary vascular anatomy. We retained this format in the third edition, as we were gratified that, as hoped, readers were able to find a particular subject more easily. The third edition also contained still more new illustrations, retaining the approach of orientating these illustrations, where appropriate, as seen by the surgeon working in the operating room, but reverting to anatomical orientation for most of the pictures of specimens. So as to clarify the various orientations of each individual illustration, we continued to include a set of axes showing, when appropriate, the directions of superior, inferior, anterior, posterior, left, right, apex, and base. All accounts were based on the anatomy as it is observed and, except in the case of malformations involving the aortic arch and its branches, they owe nothing to speculative embryology.

A major change was forced upon us as we prepared this fourth edition, as our original surgical author, Benson Wilcox, died in May of 2010. It is very difficult to replace such a pioneer and champion of surgical education, but we are gratified that Carl Backer has assumed the role of surgical editor. We are also pleased to add Diane Spicer to our anatomical team. She has contributed enormously by providing many new and better illustrations of the anatomy as seen in the autopsied heart. These advances are complimented by the contributions of our other new editor, Tony Hlavacek. Tony has provided quite remarkable images obtained using computed tomography and magnetic resonance imaging, which show that the heart can be imaged with just as much accuracy during life as when we hold the specimens in our hands on the autopsy bench. Recognising the huge contributions of Ben Wilcox, we are also pleased to rename this fourth edition 'Wilcox's Surgical Anatomy of the Heart'. As with the previous editions, it is our hope that the new edition will continue to be of interest not only to the surgeon, but also to the cardiologist, anaesthesiologist, and surgical pathologist. All of these practitioners ideally should have some knowledge of cardiac structures and their exquisite intricacies, particularly those cardiologists who increasingly treat lesions that previously were the province of the surgeon. Our senior anatomist remains active, and has been fortunate to be granted access to several archives of autopsied hearts held in the United States of America subsequent to his retirement from the Institute of Child Health in London. We remain confident that, in the hands of this new team, and if supply demands, the book will pass through still further editions, hopefully continuing to improve with each version.

Robert H. Anderson, Diane E. Spicer,
Anthony M. Hlavacek,
Andrew C. Cook,
and Carl L. Backer,
London, Tampa, Charleston and Chicago
November, 2012

Acknowledgements

A good deal of the material displayed in these pages, and the concepts espoused, are due in no small part to the help of our friends and collaborators. As indicated in our preface, the major change since we produced the third edition has been the sad passing of our founding surgical editor, Benson R. Wilcox. We have renamed this fourth edition 'Wilcox's Surgical Anatomy of the Heart'. We dedicate this edition to his eternal memory. A further change has been the retirement of Robert H. Anderson from the Institute of Child Health at Great Ormond Street Children's Hospital, London. Retirement, however, has permitted him to establish new connections, not least with the newest additions to our team of authors. This has permitted many new hearts to be specifically photographed for this new edition, not only of autopsy specimens, but also in the operating room. In addition, it has created the collaboration that permits the inclusion of wonderful images obtained using computed tomography and magnetic resonance imaging. We continue, nonetheless, to owe a particular debt to Anton Becker of the University of Amsterdam, Bob Zuberbuhler of Children's Hospital of Pittsburgh, Pennsylvania, United States of America, and F. Jay Fricker of University of Florida, Gainesville, Florida, United States of America, all of whom permitted us to use material from the extensive collections of normal and pathological specimens held in their centres. We also continue to acknowledge the debt owed to Siew Yen Ho, of the National Heart and Lung Institute, part of Imperial College in London. Yen produced many of the original drawings from which we prepared our artwork, and photographed many of the hearts in the Brompton archive. The initial photographs and surgical artwork could not have been produced without the considerable help given by the Department of Medical Illustrations and Photography, University of North Carolina. As with the third edition, we owe an equal debt of gratitude to Gemma Price, who has continued to improve our series of cartoons. For both the third edition and this edition, she has worked over and above the call of duty. We also thank Vi Hue Tran, who helped photograph the hearts from Great Ormond Street. We are again indebted to Christine Anderson for her help during the preparation of the manuscript, and thank the team supporting Carl Backer at Lurie Children's of Chicago, in particular Pat Heraty and Anne E. Sarwark. Finally, it is a pleasure to acknowledge the support provided by Cambridge University Press, who have ensured that all the good parts of the previous editions were retained. In particular, we thank Nicholas Dunton and Joanna Chamberlin for all their help during the preparation of the book for publication.