

Contents

Contributors, vii

Preface, xi

About the Companion Website, xii

Part I Introduction to Cardiac Ultrasound Imaging

- 1 Ultrasound Physics, 3
Jan D'hooge and Luc L. Mertens
- 2 Instrumentation, Patient Preparation, and Patient Safety, 19
Stacey Drant and Vivekanand Allada
- 3 Segmental Approach to Congenital Heart Disease, 31
Tal Geva
- 4 The Normal Pediatric Echocardiogram, 44
Wyman W. Lai and H. Helen Ko

Part II Quantitative Methods

- 5 Structural Measurements and Adjustments for Growth, 63
Thierry Sluysmans and Steven D. Colan
- 6 Hemodynamic Measurements, 73
Mark K. Friedberg
- 7 Systolic Ventricular Function, 96
Luc Mertens and Mark K. Friedberg
- 8 Diastolic Ventricular Function Assessment, 132
Peter C. Frommelt

Part III Anomalies of the Systemic and Pulmonary Veins, Septa, and Atrioventricular Junction

- 9 Pulmonary Venous Anomalies, 157
David W. Brown
- 10 Systemic Venous Anomalies, 180
Leo Lopez and Sarah Chambers
- 11 Anomalies of the Atrial Septum, 197
Tal Geva
- 12 Ventricular Septal Defects, 215
Shobha Natarajan and Meryl S. Cohen
- 13 Ebstein Anomaly, Tricuspid Valve Dysplasia, and Right Atrial Anomalies, 231
Frank Cetta and Benjamin W. Eidem

14 Mitral Valve and Left Atrial Anomalies, 243
James C. Nielsen and Laurie E. Panesar

15 Common Atrioventricular Canal Defects, 259
Meryl S. Cohen

Part IV Anomalies of the Ventriculo-arterial Junction and Great Arteries

- 16 Anomalies of the Right Ventricular Outflow Tract and Pulmonary Valve, 281
Matthew S. Lemler and Claudio Ramaciotti
- 17 Pulmonary Atresia with Intact Ventricular Septum, 297
Jami C. Levine
- 18 Abnormalities of the Ductus Arteriosus and Pulmonary Arteries, 317
Bhawna Arya and Craig A. Sable
- 19 Anomalies of the Left Ventricular Outflow Tract and Aortic Valve, 336
John M. Simpson and Owen I. Miller
- 20 Hypoplastic Left Heart Syndrome, 357
David J. Goldberg and Jack Rychik
- 21 Aortic Arch Anomalies: Coarctation of the Aorta and Interrupted Aortic Arch, 382
Jan Marek, Matthew Fenton, and Sachin Khambadkone
- 22 Tetralogy of Fallot, 407
Shubhika Srivastava, Wyman W. Lai, and Ira A. Parness
- 23 Truncus Arteriosus and Aortopulmonary Window, 433
Timothy C. Slesnick, Ritu Sachdeva, Joe R. Kreeger, and William L. Border
- 24 Transposition of the Great Arteries, 446
Luc Mertens, Manfred Vogt, Jan Marek, and Meryl S. Cohen
- 25 Double-Outlet Ventricle, 466
Leo Lopez and Tal Geva
- 26 Physiologically “Corrected” Transposition of the Great Arteries, 489
Erwin Oechslin

Part V Miscellaneous Cardiovascular Lesions

- 27** Hearts with Functionally One Ventricle, 511
Stephen P. Sanders
- 28** Echocardiographic Assessment of Functionally Single Ventricles after the Fontan Operation, 541
Marc Gewillig and Luc Mertens
- 29** Cardiac Malpositions and Heterotaxy Syndrome, 558
Irene D. Lytrivi and Wyman W. Lai
- 30** Congenital Anomalies of the Coronary Arteries, 584
J. René Herlong and Piers C. A. Barker
- 31** Vascular Rings and Slings, 609
Andrew J. Powell
- 32** Connective Tissue Disorders, 624
Julie De Backer
- 33** Cardiac Tumors, 641
Michele A. Frommelt

Part VI Anomalies of Ventricular Myocardium

- 34** Dilated Cardiomyopathy, Myocarditis, and Heart Transplantation, 653
Renee Margossian
- 35** Hypertrophic Cardiomyopathy, 677
Colin J. McMahon and Javier Ganame
- 36** Restrictive Cardiomyopathy and Pericardial Disease, 694
Cecile Tissot and Adel K. Younoszai
- 37** Other Anomalies of the Ventricular Myocardium, 719
Rebecca S. Beroukhim and Mary Etta E. King

Part VII Acquired Pediatric Heart Disease

- 38** Kawasaki Disease, 739
Erik C. Michelfelder and Allison Divanovic
- 39** Rheumatic Fever and Rheumatic Heart Disease, 750
Bo Reményi, Andrew Steer, and Michael Cheung
- 40** Infective Endocarditis, 763
Manfred Otto Vogt and Andreas Kühn

Part VIII Special Techniques and Topics

- 41** Transesophageal and Intraoperative Echocardiography, 777
Owen I. Miller, Aaron J. Bell, and John M. Simpson
- 42** 3D Echocardiography, 791
Folkert Jan Meijboom, Heleen van der Zwaan, and Jackie McGhie
- 43** Pregnancy and Heart Disease, 815
Anne Marie Valente
- 44** Fetal Echocardiography, 834
Darren P. Hutchinson and Lisa K. Hornberger
- 45** The Echocardiographic Assessment of Pulmonary Arterial Hypertension, 872
Lindsay M. Ryerson and Jeffrey F. Smallhorn

APPENDIX Normal Echocardiographic Values for Cardiovascular Structures, 883

Index, 903