

SECTION 1: HEART, ENDOMYOCARDIAL BIOPSY

CONGENITAL/GENETIC

4 Endocardial Fibroelastosis Syndrome

Monica P. Revelo, MD, PhD

6 Arrhythmogenic Cardiomyopathy

Dylan V. Miller, MD, Jagdish Butany, MBBS, MS, FRCPC, and Monica P. Revelo, MD, PhD

12 Fatty Acid Metabolic Disorders

Monica P. Revelo, MD, PhD

14 Mitochondrial Myopathies

Monica P. Revelo, MD, PhD

18 Muscular Dystrophies

Monica P. Revelo, MD, PhD

22 Glycogen Storage Diseases

Monica P. Revelo, MD, PhD

24 Fabry Disease, Heart

Monica P. Revelo, MD, PhD

28 LAMP2 Mutation (Danon Disease)

Jagdish Butany, MBBS, MS, FRCPC, Amar Ibrahim, MB, ChB, MSc, and Monica P. Revelo, MD, PhD

ACQUIRED

30 Amyloid Deposition, Heart

Elizabeth H. Hammond, MD and Monica P. Revelo, MD, PhD

38 Hemochromatosis, Heart

Philippe Romeo, MD and Monica P. Revelo, MD, PhD

40 Anthracycline Cardiotoxicity

Brandon T. Larsen, MD, PhD and Monica P. Revelo, MD, PhD

42 Catecholamine Cardiomyopathy

Monica P. Revelo, MD, PhD

44 Cocaine Cardiotoxicity

Dylan V. Miller, MD and Brian J. Hall, MD

46 Immune Checkpoint Inhibitor Toxicity

Monica P. Revelo, MD, PhD and Dylan V. Miller, MD

INFLAMMATORY

50 Lymphocytic Myocarditis

Monica P. Revelo, MD, PhD

54 Giant Cell Myocarditis

Brandon T. Larsen, MD, PhD and Monica P. Revelo, MD, PhD

56 Eosinophilic (Löffler) Myocarditis

Monica P. Revelo, MD, PhD

60 Sarcoidosis, Heart

Monica P. Revelo, MD, PhD

62 Acute Rheumatic Carditis

Monica P. Revelo, MD, PhD

66 Eosinophilic Granulomatosis With Polyangiitis

Monica P. Revelo, MD, PhD

68 Viral Myocarditis

Dylan V. Miller, MD, Brian J. Hall, MD, and Nikhil Sangle, MD, FRCPath

70 Toxoplasmosis, Heart

Monica P. Revelo, MD, PhD

72 Chagas Disease, Heart

Dylan V. Miller, MD and Brian J. Hall, MD

76 Lyme Disease and Rickettsial Myocarditis

Dylan V. Miller, MD and Brian J. Hall, MD

80 SARS-CoV-2 (COVID-19)-Related Cardiovascular Disease

Dylan V. Miller, MD and Monica P. Revelo, MD, PhD

84 Lupus Erythematosus, Heart

Monica P. Revelo, MD, PhD

TRANSPLANT REJECTION

90 Acute Cellular Transplant Rejection, Heart

Elizabeth H. Hammond, MD and Monica P. Revelo, MD, PhD

96 Antibody-Mediated Transplant Rejection, Heart

Elizabeth H. Hammond, MD and Monica P. Revelo, MD, PhD

102 Quilty Lesions

Billie Fyfe, MD and Monica P. Revelo, MD, PhD

106 Previous Biopsy Sites, Heart Transplant

Billie Fyfe, MD and Monica P. Revelo, MD, PhD

108 Posttransplant Lymphoproliferative Disorder, Heart

Dylan V. Miller, MD, Brian J. Hall, MD, and Nikhil Sangle, MD, FRCPath

110 Harvesting Injury/Acute Ischemia, Heart

Billie Fyfe, MD and Monica P. Revelo, MD, PhD

SECTION 2: HEART, RESECTION

HEART EXPLANT

116 Hypertrophic Cardiomyopathy

Vidhya Nair, MBBS, MD, FRCPC and Monica P. Revelo, MD, PhD

122 Idiopathic Dilated Cardiomyopathy

Dylan V. Miller, MD

126 Ischemic Heart Disease

Vidhya Nair, MBBS, MD, FRCPC and Monica P. Revelo, MD, PhD

130 Overview of Coronary Artery Stents

Dylan V. Miller, MD

134 Cardiac Allograft Vasculopathy

Monica P. Revelo, MD, PhD

140 Radiation Injury, Heart

Dylan V. Miller, MD and Philippe Romeo, MD

142 Cardiac Conduction System Disease

Dylan V. Miller, MD

150 Ventricular Assist Devices

Dylan V. Miller, MD

156 Approach to Cardiomyopathy (Worksheet)

Dylan V. Miller, MD

158 Approach to Cardiomyopathy Diagnosis

Dylan V. Miller, MD

SECTION 3: HEART, TUMORS

BENIGN

166 Cardiac Myxoma

Dylan V. Miller, MD and Joseph J. Maleszewski, MD

172 Papillary Fibroelastoma

Dylan V. Miller, MD and Joseph J. Maleszewski, MD

176 Cardiac Rhabdomyoma

Dylan V. Miller, MD and Joseph J. Maleszewski, MD

180 Cardiac Fibroma

Dylan V. Miller, MD and Joseph J. Maleszewski, MD

184 Ectopic Tissues, Heart

Dylan V. Miller, MD and Joseph J. Maleszewski, MD

186 Lipomatous Hypertrophy of Atrial Septum

Dylan V. Miller, MD and Billie Fyfe, MD

MALIGNANT

188 Cardiac Lymphoma

Dylan V. Miller, MD, Brian J. Hall, MD, and Nikhil Sangle, MD, FRCPath

190 Cardiac Angiosarcoma

Joseph J. Maleszewski, MD and Monica P. Revelo, MD, PhD

194 Cardiac Sarcoma, Other

Dylan V. Miller, MD and Joseph J. Maleszewski, MD

198 Cardiac Metastases

Dylan V. Miller, MD and Jagdish Butany, MBBS, MS, FRCPC

SECTION 4: CARDIAC VALVES, NATIVE

AORTIC

206 Unicommissural Aortic Valve

Dylan V. Miller, MD and Jagdish Butany, MBBS, MS, FRCPC

210 Bicuspid Aortic Valve

Jagdish Butany, MBBS, MS, FRCPC, Amar Ibrahim, MB, ChB, MSc, and Monica P. Revelo, MD, PhD

214 Senile Calcific Aortic Stenosis

Monica P. Revelo, MD, PhD

218 Discrete Membranous Subaortic Stenosis

Dylan V. Miller, MD

MITRAL

220 Myxomatous Mitral Valve Disease

Dylan V. Miller, MD and Philippe Romeo, MD

224 Rheumatic Heart Disease

Dylan V. Miller, MD and Philippe Romeo, MD

TRICUSPID

228 Carcinoid Heart Disease

Joseph J. Maleszewski, MD and Monica P. Revelo, MD, PhD

232 Ebstein Anomaly

Dylan V. Miller, MD and Philippe Romeo, MD

PULMONARY

234 Congenital Pulmonary Stenosis

Dylan V. Miller, MD and Brian J. Hall, MD

ENDOCARDITIS

236 Endocarditis, Native Valve

Vidhya Nair, MBBS, MD, FRCPC and Monica P. Revelo, MD, PhD

240 Nonbacterial Thrombotic Endocarditis

Vidhya Nair, MBBS, MD, FRCPC and Monica P. Revelo, MD, PhD

SECTION 5: CARDIAC VALVES

PROSTHETIC

246 Leaflet Degeneration, Prosthetic Valves

Jagdish Butany, MBBS, MS, FRCPC and Monica P. Revelo, MD, PhD

250 Thrombosis of Prosthetic Valves

Dylan V. Miller, MD, Jagdish Butany, MBBS, MS, FRCPC, and Amar Ibrahim, MB, ChB, MSc

252 Endocarditis, Prosthetic Valve

Dylan V. Miller, MD and Jagdish Butany, MBBS, MS, FRCPC

258 Mechanical Heart Valve Prostheses: Modes of Failure

Dylan V. Miller, MD, Jagdish Butany, MBBS, MS, FRCPC, and Amar Ibrahim, MB, ChB, MSc

260 Catheter-Deployed Valve Therapies

Dylan V. Miller, MD and Monica P. Revelo, MD, PhD

SECTION 6: PERICARDIUM

INFLAMMATORY

268 Acute Pericarditis

Monica P. Revelo, MD, PhD

272 Constrictive Pericarditis

Monica P. Revelo, MD, PhD

274 Tuberculous Pericarditis

Monica P. Revelo, MD, PhD

TUMORS

276 Lymphoma, Pericardium

Dylan V. Miller, MD

278 Metastatic Tumor, Pericardium

Billie Fyfe, MD and Monica P. Revelo, MD, PhD

282 Mesothelioma, Pericardium

Dylan V. Miller, MD and Joseph J. Maleszewski, MD

286 Mesothelial/Monocytic Incidental Cardiac Excrescence

Dylan V. Miller, MD

SECTION 7: VASCULAR DISEASE

ENDARTERECTOMY/ATHERECTOMY/THROMBECTOMY

290 Overview of Peripheral Vascular Specimens

Dylan V. Miller, MD and Billie Fyfe, MD

296 Thromboembolus, Vascular

Billie Fyfe, MD and Monica P. Revelo, MD, PhD

THORACIC AORTA

300 Aortic Degenerative Diseases

Dylan V. Miller, MD and Brandon T. Larsen, MD, PhD

308 Genetic Diseases of the Aorta

Joseph J. Maleszewski, MD and Monica P. Revelo, MD, PhD

312 Noninfectious Aortitis

Dylan V. Miller, MD

316 Takayasu Arteritis

Dylan V. Miller, MD

320 Aortic Dissection

Dylan V. Miller, MD and Billie Fyfe, MD

324 Aortic Coarctation

Dylan V. Miller, MD and Monica P. Revelo, MD, PhD

ABDOMINAL AORTA

328 Aortic Atherosclerosis and Complications

Billie Fyfe, MD and Monica P. Revelo, MD, PhD

334 Chronic Periaortitis and IgG4-Related Disease

Dylan V. Miller, MD

336 Mycotic Aneurysm

Monica P. Revelo, MD, PhD

CORONARY ARTERIES

340 Atherosclerosis, Coronary

Monica P. Revelo, MD, PhD

344 Coronary Artery Dissection

Monica P. Revelo, MD, PhD

348 Kawasaki Disease

Vidhya Nair, MBBS, MD, FRCPC and Monica P. Revelo, MD, PhD

352 Coronary Artery Emboli

Monica P. Revelo, MD, PhD

TEMPORAL ARTERIES

354 Giant Cell/Temporal Arteritis

Dylan V. Miller, MD and Monica P. Revelo, MD, PhD

PERIPHERAL VESSELS

358 Buerger Disease (Thromboangiitis Obliterans)

Dylan V. Miller, MD and Jagdish Butany, MBBS, MS, FRCPC

362 Fibromuscular Dysplasia

Dylan V. Miller, MD and A. Brad Farris, III, MD

368 Segmental Arterial Mediolytic

Dylan V. Miller, MD

370 Mönckeberg Medial Calcific Sclerosis

Brandon T. Larsen, MD, PhD and Monica P. Revelo, MD, PhD

372 Behçet Disease

Dylan V. Miller, MD and Brandon T. Larsen, MD, PhD

376 Infectious Vasculitis

Dylan V. Miller, MD and Brandon T. Larsen, MD, PhD

382 Lymphocytic Venulitis

Monica P. Revelo, MD, PhD

384 Varicosities

Dylan V. Miller, MD and Billie Fyfe, MD

386 Hypertensive Renovascular Diseases

Dylan V. Miller, MD, A. Brad Farris, III, MD, and Brandon T. Larsen, MD, PhD

VASCULAR TISSUE GRAFTS

390 Vascular Graft Pseudoaneurysm

Jagdish Butany, MBBS, MS, FRCPC, Pooja Gupta, MBBS, DNB, and Monica P. Revelo, MD, PhD

SECTION 8: VASCULAR TUMORS

BENIGN

396 Hemangioma

Dylan V. Miller, MD and Brandon T. Larsen, MD, PhD

406 Angiomyolipoma

Dylan V. Miller, MD, Satish K. Tickoo, MD, and Victor E. Reuter, MD

410 Glomus Tumor

Dylan V. Miller, MD and Brandon T. Larsen, MD, PhD

418 Cystic Lymphangioma

Monica P. Revelo, MD, PhD

420 Arteriovenous Malformations

Dylan V. Miller, MD

MALIGNANT

424 Epithelioid Hemangioendothelioma

Dylan V. Miller, MD and Brandon T. Larsen, MD, PhD

428 Kaposi Sarcoma

Dylan V. Miller, MD and Brandon T. Larsen, MD, PhD

434 Angiosarcoma

Dylan V. Miller, MD and Brandon T. Larsen, MD, PhD

SECTION 9: AUTOPSY

CARDIAC

442 Coronary Artery Bypass Grafting

Dylan V. Miller, MD

446 Valve Replacement (Including Transcatheter)

Dylan V. Miller, MD and Brandon T. Larsen, MD, PhD

452 Infective Endocarditis

Dylan V. Miller, MD

458 Ventricular Assist Device Insertion

Dylan V. Miller, MD and Brandon T. Larsen, MD, PhD

462 Heart Transplant

Dylan V. Miller, MD

VASCULAR

468 Thoracic Aortic Aneurysm Repair

Dylan V. Miller, MD, Billie Fyfe, MD, and George P. Batsides, MD

474 Abdominal Aortic Aneurysm

Dylan V. Miller, MD and Billie Fyfe, MD

478 Cerebral Aneurysm and Vascular Malformation

Dylan V. Miller, MD and Roy H. Rhodes, MD, PhD