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VASCULAR SURGERY

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**ROBERT B. RUTHERFORD, M.D.,
F.A.C.S., F.R.C.S. (Glasg.)**

Emeritus Professor of Surgery

University of Colorado School of Medicine

Denver, Colorado



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E D I T O R S

ASSOCIATE EDITORS

JACK L. CRONENWETT, M.D.

Professor of Surgery and Chief, Section of Vascular Surgery, Dartmouth Medical School, Hanover, New Hampshire, and Dartmouth-Hitchcock Medical Center, Lebanon, New Hampshire.

PETER GLOVICZKI, M.D.

Professor of Surgery, Mayo Medical School. Vice Chair, Division of Vascular Surgery, Mayo Clinic and Foundation. Staff Surgeon, Saint Mary's Hospital of Rochester and Rochester Methodist Hospital, Rochester, Minnesota.

K. WAYNE JOHNSTON, M.D., F.R.C.S.(C.)

Professor of Surgery and Chair, Division of Vascular Surgery, University of Toronto, Toronto, Ontario, Canada.

RICHARD F. KEMPCZINSKI, M.D.

Emeritus Professor of Surgery, University of Cincinnati College of Medicine, Cincinnati, Ohio.

WILLIAM C. KRUPSKI, M.D.

Professor of Surgery, University of Colorado School of Medicine. Chief, Vascular Surgery, University of Colorado Health Sciences Center, Denver, Colorado.

ASSISTANT EDITORS

JULIE A. FREISCHLAG, M.D.

Professor of Surgery, University of California at Los Angeles, UCLA School of Medicine. Chief of Vascular Surgery, The Gondo Vascular Center, Los Angeles, California.

KIMBERLEY J. HANSEN, M.D.

Professor of Surgery, Division of Surgical Sciences, Department of General Surgery, Wake Forest University School of Medicine. Winston-Salem, North Carolina.

KAJ H. JOHANSEN, M.D., PhD.

Professor of Surgery, University of Washington School of Medicine. Director, Surgical Education, Providence Medical Center, Seattle, Washington.

KENNETH OURIEL, M.D.

Professor of Surgery, Ohio State University College of Medicine. Chairman, Department of Vascular Surgery, Cleveland Clinic Foundation, Cleveland, Ohio.

THOMAS S. RILES, M.D.

Professor of Surgery and Director, Division of Vascular Surgery, New York University School of Medicine. Attending Physician, Tisch Hospital and Bellevue Hospital, New York, New York.

ANTON N. SIDAWY, M.D.

Professor of Surgery, George Washington University School of Medicine and Health Sciences and Georgetown University School of Medicine. Chief, Veterans Affairs Medical Center, Washington, DC.

LLOYD M. TAYLOR, JR., M.D.

Professor of Surgery, Oregon Health Sciences University School of Medicine, Portland, Oregon.



C O N T R I B U T O R S

ALI F. ABURAHMA, M.D.

Professor, Department of Surgery, West Virginia University School of Medicine and Robert C. Byrd Health Sciences Center. Chief, Vascular Section, and Medical Director, Vascular Laboratory, Charleston Area Medical Center, Charleston, West Virginia.

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C. ALAN ANDERSON, M.D.

Assistant Professor of Neurology and Emergency Medicine, University of Colorado School of Medicine, Denver, Colorado.

Diagnosis, Evaluation, and Medical Management of Patients with Ischemic Cerebrovascular Disease

ENRICO ASCHER, M.D.

Professor of Surgery, State University of New York Health Science Center at Brooklyn. Director, Division of Vascular Surgery, Maimonides Medical Center, Brooklyn, New York.

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Professor of Surgery, University of California, UCLA School of Medicine. Chief, Vascular Surgery Section, West Los Angeles Veterans Affairs Medical Center, Los Angeles, California.

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Professor of Surgery, Loyola University Stritch School of Medicine. Chief, Division of Vascular Surgery, Loyola University Medical Center, Maywood, Illinois.

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JEFFREY L. BALLARD, M.D., F.A.C.S.

Associate Professor of Surgery, Loma Linda University School of Medicine. Program Director, Vascular Surgery Residency, and Medical Director, Noninvasive Vascular Laboratory, Loma Linda University Medical Center, Loma Linda, California.

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Professor of Surgery and Director, Division of Vascular Surgery, University of South Florida College of Medicine, Tampa, Florida.

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Assistant Professor of Radiology, University of Pennsylvania School of Medicine, Philadelphia, Pennsylvania.

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B. TIMOTHY BAXTER, M.D.

Professor of Surgery, University of Nebraska College of Medicine. Chief of Vascular Surgery, Omaha Veterans Affairs Hospital, Omaha, Nebraska.

Arterial Aneurysms: Etiologic Considerations

MICHAEL BELKIN, M.D.

Associate Professor of Surgery, Harvard Medical School. Program Director in General Surgery, Brigham and Women's Hospital, Boston, Massachusetts.

Infringuinal Bypass

MARSHALL E. BENJAMIN, M.D.

Vascular Fellow, Division of Surgical Sciences, Department of General Surgery, Wake Forest University School of Medicine, Winston-Salem, North Carolina.

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THOMAS M. BERGAMINI, M.D.

Associate Professor of Surgery, University of Louisville School of Medicine. Chief, Section of Vascular Surgery, Veterans Administration Medical Center, Louisville, Kentucky.

Long-Term Venous Access

JOHN J. BERGAN, M.D., F.A.C.S.

Professor of Surgery, University of California, San Diego, School of Medicine, San Diego; Loma Linda University School of Medicine, Loma Linda, California; and U.S. United Health Service, Bethesda, Maryland. Attending Surgeon, Scripps Memorial Hospital, La Jolla, California.

Adventitial Cystic Disease of the Popliteal Artery; Varicose Veins: Treatment by Surgery and Sclerotherapy

RAMON BERGUER, M.D., Ph.D.

Professor of Surgery, Wayne State University School of Medicine. Chief, Section of Vascular Surgery, Harper Hospital, Detroit, Michigan.

Vertebrobasilar Ischemia: Indications, Techniques, and Results of Surgical Repair

SCOTT S. BERMAN

Associate Professor of Biomedical Engineering and Associate Professor of Clinical Surgery, University of Arizona College of Medicine. Section Head, Vascular Surgery, Carondelet St. Mary's Hospital. Medical Director, Vascular Program, Tucson Heart Hospital, Tucson, Arizona.

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VICTOR M. BERNHARD, M.D.

Visiting Scholar, Department of Surgery, Section of Vascular Surgery, University of Chicago, Chicago, Illinois.

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MICHAEL J. BLOCH, M.D.

Instructor, Department of Medicine, Division of Hypertension, Cornell University Medical College. Assistant Attending Physician, Department of Medicine, New York Presbyterian Hospital, New York, New York.
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FRED BONGARD, M.D.

Professor of Surgery, University of California, Los Angeles, UCLA School of Medicine, Los Angeles. Chief, Division of Trauma and Critical Care, Department of Surgery, Harbor-UCLA Medical Center, Torrance, California.
Thoracic and Abdominal Vascular Trauma

THOMAS C. BOWER, M.D.

Associate Professor of Surgery, Mayo Graduate School of Medicine. Program Director, Vascular Surgery Fellowship Program, Mayo Clinic and Mayo Foundation, Rochester, Minnesota.
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DAVID C. BREWSTER, M.D.

Clinical Professor of Surgery, Harvard Medical School. Attending Surgeon, Division of Vascular Surgery, Massachusetts General Hospital, Boston, Massachusetts.
Prosthetic Grafts; Direct Reconstruction for Aortoiliac Occlusive Disease

JOHN G. CALAITGES, M.D.

Clinical Instructor in Surgery, University of Missouri-Columbia School of Medicine. Vascular Resident, University of Missouri-Columbia Hospitals and Clinics, Columbia, Missouri.
Principles of Hemostasis; Antithrombotic Therapy

KEITH D. CALLIGARO, M.D.

Associate Clinical Professor of Surgery, University of Pennsylvania School of Medicine. Chief, Section of Vascular Surgery, Pennsylvania Hospital, Philadelphia, Pennsylvania.
Renal Artery Aneurysms and Arteriovenous Fistulae

RICHARD P. CAMBRIA, M.D.

Associate Professor of Surgery Harvard Medical School. Visiting Surgeon, Massachusetts General Hospital, Boston, Massachusetts.
Thoracoabdominal Aortic Aneurysms

ROBERT A. CAMBRIA, M.D., F.A.C.S.

Associate Professor of Surgery, Medical College of Wisconsin, Milwaukee, Wisconsin.
Iatrogenic Complications of Arterial and Venous Catheterizations

MICHAEL T. CAPS, M.D., M.P.H.

Assistant Professor of Surgery, University of Washington School of Medicine, Seattle, Washington.
The Epidemiology of Vascular Trauma

JEFFREY P. CARPENTER, M.D.

Associate Professor of Surgery, University of Pennsylvania School of Medicine, Philadelphia, Pennsylvania.
Magnetic Resonance Imaging and Angiography

KENNETH J. CHERRY, JR., M.D.

Professor of Surgery, Mayo Medical School. Chair, Division of Vascular Surgery, Mayo Clinic, Rochester, Minnesota.
Arteriosclerotic Occlusive Disease of Brachiocephalic Arteries

JAE-SUNG CHO, M.D.

Senior Staff Surgeon, Henry Ford Hospital, Division of Vascular Surgery, Detroit, Michigan.
Surgical Treatment of Chronic Deep Venous Obstruction

G. PATRICK CLAGETT, M.D.

Jan and Bob Pickens Professor of Medical Science; Chairman, Division of Vascular Surgery, and Director, Center for Vascular Disease, University of Texas Southwestern Medical Center at Dallas. Chief of Vascular Surgery and Attending Staff, Zale Lipshy University Hospital and Parkland Memorial Hospital. Attending Staff, Vascular General Surgery, and Consulting Member, Department of Surgery, Children's Medical Center, Dallas, Texas.
Upper Extremity Aneurysms

ELIZABETH T. CLARK, M.D.

Chief, Section of Vascular Surgery, Catholic Health Partners, Chicago, Illinois.
Anastomotic and Other Pseudoaneurysms

ALEXANDER W. CLOWES, M.D.

Professor of Surgery, University of Washington School of Medicine. Attending Surgeon, University of Washington Medical Center, Seattle, Washington.
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JON R. COHEN, M.D.

Professor of Surgery, Albert Einstein College of Medicine of Yeshiva University, Bronx, New York. Chairman, Department of Surgery, and Chief of Vascular Surgery, Long Island Jewish Medical Center, New Hyde Park, New York.
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ANTHONY J. COMEROTA, M.D., F.A.C.S.

Professor of Surgery, Department of Surgery, Temple University School of Medicine. Chief of Vascular Surgery, Temple University Hospital, Philadelphia, Pennsylvania.
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DANIEL P. CONNELLY, M.D.

Assistant Professor of Surgery, Uniformed Services University of the Health Sciences, Bethesda, Maryland. Chairman, Department of Surgery, Overland Park Regional Medical Center, Overland Park, Kansas.
The Arterial Autograft

JOHN P. COOKE, M.D., Ph.D.

Associate Professor, Division of Cardiovascular Medicine, Stanford University School of Medicine, Stanford, California.
Atherogenesis and the Medical Management of Atherosclerosis

MICHAEL A. COOPER, M.D.

Assistant Clinical Professor, University of Colorado School of Medicine. Attending Physician, Rose Medical Center, Denver, Colorado.

Neurogenic Thoracic Outlet Syndrome

ENRIQUE CRIADO, M.D., F.A.C.S.

Associate Professor of Surgery, University of North Carolina at Chapel Hill, Chapel Hill, North Carolina. Head, Vascular Surgery Unit, Fundación Hospital de Alcorc6w, Madrid, Spain.

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JACK L. CRONENWETT, M.D.

Professor of Surgery and Chief, Section of Vascular Surgery, Dartmouth Medical School, Hanover, New Hampshire, and Dartmouth-Hitchcock Medical Center, Lebanon, New Hampshire.

Overview, Section XII; Abdominal Aortic and Iliac Aneurysms

MICHAEL D. DAKE, M.D.

Associate Professor of Radiology and Medicine (Pulmonary), Stanford University School of Medicine. Chief, Cardiovascular and Interventional Radiology, Stanford University Hospital and UC San Francisco—Stanford Health Care, Stanford, California.

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Clinical Professor of Surgery, Mount Sinai School of Medicine of the City University of New York. Chief of Vascular Surgery, Englewood Hospital and Medical Center, Englewood, New Jersey.

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Vascular Fellow, Wake Forest University School of Medicine, Winston-Salem, North Carolina.

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Professor of Surgery, Vice Chair Department of Surgery, and Associate Dean, University of Nevada School of Medicine. Chief of Surgery, Veterans Affairs Medical Center, Reno, Nevada.

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LARRY-STUART DEUTSCH, M.D., C.M. F.R.C.P.(C.)

Professor and Chief-of-Service, University of California, Irvine, College of Medicine, Irvine. Chief-of-Service, Vascular and Interventional Radiology, UC Irvine Medical Center, Orange, California.

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JOHN A. DORMANDY, D.Sc., F.R.C.S.

Professor of Vascular Sciences, St. Georges Hospital Medical School. Consultant Vascular Surgeon, Department of Vascular Surgery, St. George's Hospital, London, England.

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MATTHEW J. DOUGHERTY, M.D.

Assistant Clinical Professor of Surgery, University of Pennsylvania School of Medicine; Section of Vascular Surgery, Pennsylvania Hospital, Philadelphia, Pennsylvania.

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JOSEPH R. DURHAM, M.D., R.V.T.

Chairman, Department of Surgery, Oak Forest Hospital of Cook County, Oak Forest, Illinois.

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JAMES M. EDWARDS, M.D.

Associate Professor of Surgery, Oregon Health Sciences University School of Medicine, Portland, Oregon.

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BO EKLOF, M.D., Ph.D.

Clinical Professor of Surgery, John A. Burns School of Medicine, University of Hawaii. Vascular Surgeon, Straub Clinic and Hospital, Honolulu, Hawaii.

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ERROL E. ERLANDSON, M.D.

Clinical Associate Professor of Surgery, University of Michigan Medical School. Director, Noninvasive Vascular Laboratory, St. Joseph Mercy Hospital, Ann Arbor, Michigan.

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CALVIN B. ERNST, M.D.

Professor of Surgery, MCP Hahnemann University School of Medicine. Chief, Division of Vascular Surgery, MCP Hahnemann University Hospital, Philadelphia, Pennsylvania.

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MICHAEL M. FAROOQ, M.D.

Assistant Professor of Surgery, University of California, Los Angeles, UCLA School of Medicine. Attending Vascular Surgeon, UCLA Medical Center, UCLA Olive View Medical Center, West Los Angeles Veterans Affairs Medical Center, Los Angeles.

Peritoneal Dialysis

RISHAD M. FARUQI, M.B.B.S., F.R.C.S.(Eng.), F.R.C.S.(Ed.)

Clinical Instructor of Surgery, Division of Vascular Surgery, University of California, San Francisco School of Medicine, San Francisco, California.

The Arterial Autograft

CARLOS M. FERRARIO, M.D.

Professor, Wake Forest University School of Medicine. Director, Hypertension and Vascular Disease Center, North Carolina Baptist Hospitals, Inc., Winston-Salem, North Carolina.

Pathophysiology, Functional Studies, and Medical Therapy of Renovascular Hypertension

MARK F. FILLINGER, M.D.

Assistant Professor of Surgery, Dartmouth Medical School, Hanover, New Hampshire, and Dartmouth-Hitchcock Medical Center, Lebanon, New Hampshire.

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DANIEL F. FISHER, JR., M.D., F.A.C.S.

Associate Professor, Department of Surgery, University of Tennessee, Chattanooga, College of Medicine. Chief of Surgery, Erlanger Medical Center, Chattanooga, Tennessee.

Complications of Amputation

D. PRESTON FLANIGAN, M.D.

Clinical Professor of Surgery, University of California, Irvine, College of Medicine, and UC Irvine Medical Center, Orange, California.

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RICHARD J. FOWL, M.D.

Associate Professor of Surgery, Mayo Medical School. Vascular Surgeon, Mayo Clinic, Scottsdale, Arizona.

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JULIE A. FREISCHLAG, M.D.

Professor of Surgery, University of California at Los Angeles, UCLA School of Medicine. Chief of Vascular Surgery, The Gondo Vascular Center, Los Angeles, California.

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GAIL L. GAMBLE, M.D.

Assistant Professor, Mayo Medical School. Co-Director, Lymphedema Center, and Consultant, Department of Physical Medicine and Rehabilitation, Mayo Clinic, Rochester, Minnesota.

Nonoperative Management of Chronic Lymphedema

HUGH A. GELABERT, M.D.

Associate Professor, Division of Vascular Surgery, University of California, UCLA School of Medicine, Los Angeles, California.

Hemodialysis Access

BRUCE L. GEWERTZ, M.D., F.A.C.S.

Dallas B. Phemister Professor and Chairman, Department of Surgery, The University of Chicago Pritzker School of Medicine, Chicago, Illinois.

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JOSEPH M. GIORDANO, M.D.

Professor of Surgery, George Washington University School of Medicine. Chairman, Department of Surgery, George Washington University Medical Center, Washington, DC.

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SEYMOUR GLAGOV, M.D.

Professor of Pathology, Medicine, and Surgery, University of Chicago Pritzker School of Medicine, Chicago, Illinois.

Artery Wall Pathology in Atherosclerosis

BOBBY S. GLICKMAN, M.D.

Resident in General Surgery, University of Nebraska Medical Center, Omaha, Nebraska.

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PETER GLOVICZKI, M.D.

Professor of Surgery, Mayo Medical School. Vice Chair, Division Vascular Surgery, Mayo Clinic and Foundation, Rochester, Minnesota. Staff Surgeon, Saint Mary's Hospital of Rochester and Rochester Methodist Hospital, Rochester, Minnesota.

Principles of Venography; Lymphatic Complications of Vascular Surgery; Venous Disease: An Overview; Management of Perforator Vein Incompetence; Surgical Treatment of Chronic Deep Venous Obstruction; Surgical Treatment of Superior Vena Cava Syndrome; Lymphedema: An Overview; Clinical Diagnosis and Evaluation of Lymphedema; Nonoperative Management of Chronic Lymphedema; Lymphatic Reconstructions

JERRY GOLDSTONE, M.D.

Professor of Surgery, Case Western Reserve University School of Medicine. Chief, Vascular Surgery, University Hospitals of Cleveland, Cleveland, Ohio.

Aneurysms of the Extracranial Carotid Artery

MICHAEL J. V. GORDON, M.D., F.A.C.S.

Associate Professor and Director, Hand Surgery, University of Colorado School of Medicine; University Hospital, Veterans Administration Medical Center, The Children's Hospital, Denver Health Medical Center, Denver, Colorado.

Upper Extremity Amputation

FRANK A. GOTTSCHALK, M.D., F.R.C.S.Ed., F.C.S.(S.A.)Orth.

Professor, Orthopaedic Surgery, University of Texas Southwestern Medical Center at Dallas Southwestern Medical School. Orthopaedic Consultant, Zale Lipshy University Hospital, Parkland Memorial Hospital, and University of Texas Southwestern Medical Center, Dallas, Texas.

Complications of Amputation

LINDA M. GRAHAM, M.D.

Professor of Surgery, University of Michigan Medical Center. Chief of Vascular Surgery at Department of Veterans Affairs Medical Center, Ann Arbor, Michigan.

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ROY K. GREENBERG, M.D.

Instructor in Surgery, The University of Rochester School of Medicine and Dentistry, Rochester, New York.

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LAZAR J. GREENFIELD, M.D.

Frederick A. Collier Distinguished Professor and Chairman, Department of Surgery, The University of Michigan Medical School. Surgeon-in-Chief, University of Michigan Hospitals, Ann Arbor, Michigan.

Caval Interruption Procedures

NAVYASH GUPTA, M.D.

Fellow, Vascular Surgery, The University of Chicago Hospitals, Chicago, Illinois.

Acute Occlusive Events Involving the Renal Vessels

JOHN W. HALLETT, JR., M.D., F.A.C.S.

Professor of Surgery, Associate Dean for Faculty Affairs, Mayo Medical School. Attending Physician, Mayo Clinic, Rochester, Minnesota.

Iatrogenic Complications of Arterial and Venous Catheterizations

SHARON L. HAMMOND, M.D.

Vascular Surgeon, Rose Medical Center, and Chairman, President Health Center, Denver, Colorado.

Neurogenic Thoracic Outlet Syndrome

KIMBERLEY J. HANSEN, M.D.

Professor of Surgery, Division of Surgical Sciences, Department of General Surgery, Wake Forest University School of Medicine.

Renal Complications; Renovascular Disease: An Overview; Atherosclerotic Renovascular Disease: Evaluation and Management of Ischemic Nephropathy; Techniques of Operative Management

JOHN P. HARRIS, M.S., F.R.A.C.S., F.R.C.S., F.A.C.S., D.D.U.

Professor of Vascular Surgery, University of Sydney. Chairman, Division of Surgery, Royal Prince Alfred Hospital, Sydney, Australia.

Upper Extremity Sympathectomy

DOMINIC F. HEFFEL, M.D.

Resident, Division of General Surgery, University of California, Los Angeles, UCLA School of Medicine, Los Angeles, California.

Excisional Operations for Chronic Lymphedema

W. SCOTT HELTON, M.D.

Professor of Surgery, University of Illinois College of Medicine, Chicago, Illinois.

Operative Therapy for Portal Hypertension

NORMAN R. HERTZER, M.D.

Staff Vascular Surgeon, Department of Vascular Surgery, The Cleveland Clinic Foundation, Cleveland, Ohio.

Postoperative Management and Complications Following Carotid Endarterectomy

WILLIAM R. HIATT, M.D.

Professor of Medicine, University of Colorado School of Medicine and University of Colorado Health Sciences Center. Executive Director, Colorado Prevention Center, Denver, Colorado.

Atherogenesis and the Medical Management of Atherosclerosis

JOHN R. HOCH, M.D.

Assistant Professor of Surgery, University of Wisconsin Medical School. Chief, Section of Vascular Surgery, William S. Middleton Veteran Affairs Medical Center, Madison, Wisconsin.

Long-Term Venous Access

KIM J. HODGSON, M.D.

Professor and Chief of Peripheral Vascular Surgery, Southern Illinois University School of Medicine. Attending Surgeon, Memorial Medical Center and St. John's Hospital, Springfield, Illinois.

Principles of Arteriography; Fundamental Techniques in Endovascular Surgery

GARY S. HOFFMAN, M.D.

Chairman, Department of Rheumatic and Immunologic Diseases, Cleveland Clinic Foundation, Cleveland, Ohio.

Takayasu's Disease: Nonspecific Aortoarteritis

DOUGLAS B. HOOD, M.D.

Assistant Professor of Surgery, University of Southern California School of Medicine; USC University Hospital, Los Angeles, California.

Vascular Injuries of the Extremities

RICHARD L. HUGHES, M.D.

Associate Professor of Neurology, University of Colorado School of Medicine. Chief, Neurology, Denver Health Medical Center, Denver, Colorado.

Diagnosis, Evaluation, and Medical Management of Patients with Ischemic Cerebrovascular Disease

RUSSELL D. HULL, M.B.B.S., M.Sc.

Professor of Medicine, University of Calgary Faculty of Medicine. Foothills Hospital, Calgary, Alberta, Canada.

Prevention and Medical Treatment of Acute Deep Venous Thrombosis

SCOTT N. HURLBERT, M.D.

Clinical Vascular Fellow, Southern Illinois University School of Medicine, Springfield, Illinois.

Subclavian-Axillary Vein Thrombosis

KARL A. ILLIG, M.D.

Assistant Professor of Surgery, University of Rochester School of Medicine and Dentistry. Associate Attending Physician, Strong Memorial Hospital and Rochester General Hospital, Rochester, New York.

Perioperative Hemorrhage

GLENN R. JACOBOWITZ, M.D.

Assistant Professor of Clinical Surgery, Division of Vascular Surgery, New York University School of Medicine, New York, New York.

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DENNIS M. JENSEN, M.D.

Professor of Medicine, University of California, Los Angeles, UCLA School of Medicine. Staff Physician, Division of Digestive Diseases, UCLA Center for the Health Sciences, West Los Angeles Veterans Affairs Medical Center, and CURE: Digestive Disease Research Center, Los Angeles, California.

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KAJ H. JOHANSEN, M.D., Ph.D.

Professor of Surgery, University of Washington School of Medicine. Director, Surgical Education, Providence Medical Center, Seattle, Washington.

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GEORGE JOHNSON, JR., M.D.

Emeritus Professor of Surgery, University of North Carolina at Chapel Hill, Chapel Hill, North Carolina.

Superficial Thrombophlebitis: Diagnosis and Management

K. WAYNE JOHNSTON, M.D., F.R.C.S.(C.)

Professor of Surgery and Chair, Division of Vascular Surgery, University of Toronto Faculty of Medicine, Toronto, Ontario, Canada.

Overview, Section VII; Ischemic Neuropathy; Upper Extremity Ischemia: Overview

DARRELL N. JONES, Ph.D.

Research Associate in Vascular Surgery, University of Colorado Health Sciences Center. Associate Director, Vascular Diagnostic Laboratory, University Hospital, Denver, Colorado.

Integrated Assessment of Results: Standardized Reporting of Outcomes and the Computerized Vascular Registry

JOHN W. JOYCE, M.D.

Professor of Medicine, Emeritus, Mayo Medical School, Rochester, Minnesota.

Uncommon Arteriopathies

VIKRAM S. KASHYAP, M.D.

Fellow in Vascular Surgery, University of California, Los Angeles, UCLA School of Medicine, Los Angeles, California.

Principles of Thrombolytic Therapy

JEFFREY L. KAUFMAN, M.D.

Associate Professor of Surgery, Tufts University School of Medicine. Vascular Surgeon, Department of Surgery, Baystate Medical Center, Springfield, Massachusetts.

Atheroembolism and Microthromboembolic Syndromes (Blue Toe Syndrome and Disseminated Atheroembolism)

ANDRIS KAZMERS, M.D., M.S.PH.

Associate Professor of Surgery, Wayne State University School of Medicine. Medical Director, Vascular Surgery Laboratory, Harper Hospital, Detroit, Michigan.

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RICHARD F. KEMPCZINSKI, M.D.

Emeritus Professor of Surgery, University of Cincinnati College of Medicine, Cincinnati, Ohio.

Vascular Conduits: An Overview; The Chronically Ischemic Leg: An Overview; Popliteal Artery Entrapment; Vasculogenic Impotence

K. CRAIG KENT, M.D.

Professor, Department of Surgery, Division of Vascular Surgery, Cornell University Medical College. Attending Physician, Department of Surgery, New York Presbyterian Hospital, New York, New York.

Renal Artery Imaging: Alternatives to Angiography

ROBERT K. KERLAN, JR., M.D.

Clinical Professor of Radiology, University of California, San Francisco, School of Medicine. Interventional Radiologist, Chief, Interventional Radiology, Mount Zion Medical Center of UC-San Francisco, San Francisco, California.

Percutaneous Interventions in Portal Hypertension

LAWRENCE L. KETCH, M.D., F.A.C.S., F.A.A.P.

Associate Professor and Chief, Plastic and Reconstructive Surgery, University of Colorado School of Medicine. Chief, Pediatric Plastic Surgery, The Children's Hospital, Denver, Colorado.

Upper Extremity Amputation

EDOUARD KIEFFER, M.D.

Professor of Vascular Surgery, Pitre-Salpetriere University. Chief, Department of Vascular Surgery, Pitre-Salpetriere University Hospital, Paris, France.

Arterial Complications of Thoracic Outlet Compression; Dissection of the Descending Thoracic Aorta

ROBERT L. KISTNER, M.D.

Clinical Professor of Surgery, University of Hawaii, John A. Burns School of Medicine. Department of Vascular Surgery, Straub Clinic and Hospital, Honolulu, Hawaii.

A Practical Approach to the Diagnosis and Classification of Chronic Venous Disease

STEVEN J. KNIGHT, R.V.T.

Instructor in Surgery, University of Vermont College of Medicine. Technical Director, Vascular Diagnostic Laboratory, Fletcher Allen Health Care, Inc., Burlington, Vermont.

The Role of Noninvasive Studies in the Diagnosis and Management of Cerebrovascular Disease

THOMAS O. G. KOVACS, M.D.

Associate Professor of Medicine, Division of Digestive Diseases, University of California, Los Angeles, UCLA School of Medicine. Director, Cure Clinical Trials Unit, West Los Angeles Veterans Affairs Medical Center, Los Angeles, California.

Initial Management of Upper Gastrointestinal Hemorrhage in Patients with Portal Hypertension

WILLIAM C. KRUPSKI, M.D.

Professor of Surgery, University of Colorado School of Medicine. Chief, Vascular Surgery, University of Colorado Health Sciences Center, Denver, Colorado.

Cardiac Complications and Screening; Thromboendarterectomy for Lower Extremity Arterial Occlusive Disease; Overview, Section XII; Abdominal Aortic and Iliac Aneurysms; Indications, Surgical Technique, and Results for Repair of Extracranial Occlusive Lesions; Uncommon Disorders Affecting the Carotid Arteries; Overview of Extremity Amputations, Section XXI

JEANNE M. LABERGE, M.D.

Associate Professor of Radiology, University of California, San Francisco, School of Medicine. Interventional Radiologist, The Medical Center at UC San Francisco, San Francisco, California.

Percutaneous Interventions in Portal Hypertension

LEWIS J. LEVIEN, M.B., B.Ch., Ph.D., F.C.S.(S.A.)

Honorary Lecturer, Department of Surgery, University of the Witwatersrand. Vascular Surgeon, Milpark Hospital, Johannesburg, South Africa.
Adventitial Cystic Disease of the Popliteal Artery

PAVEL J. LEVY, M.D.

Assistant Professor, Wake Forest University School of Medicine. Attending Physician, North Carolina Baptist Hospitals, Inc., Winston-Salem, North Carolina.
Pathophysiology, Functional Studies, and Medical Therapy of Renovascular Hypertension

ROBERT P. LIDDELL, M.S.

Royal College of Surgeons and Beaumont Hospital, Dublin, Ireland.
Endovascular Treatment of Chronic Occlusions of Large Veins

ROBERT C. LOWELL, M.D., F.A.C.S., R.V.T.

Vascular Surgeon, The Longstreet Clinic, Gainesville, Georgia.
Lymphatic Complications of Vascular Surgery

JAMES M. MALONE, M.D., F.A.C.S.

Clinical Professor of Surgery, University of Arizona College of Medicine, Tucson, Arizona, and Mayo Graduate School of Medicine, Rochester, Minnesota.
Revascularization Versus Amputation

M. ASHRAF MANSOUR, M.D., F.A.C.S.

Assistant Professor of Surgery, Loyola University Stritch School of Medicine. Attending Vascular Surgeon, Director of Residency Training and Education, Loyola University Medical Center, Maywood, Illinois.
Arteriovenous Fistulae of the Aorta and Its Major Branches

ELNA M. MASUDA, M.D.

Assistant Professor of Surgery, University of Hawaii John A. Burns School of Medicine. Vascular Surgeon and Director of Vascular Laboratory, Straub Clinic and Hospital, Honolulu, Hawaii.
A Practical Approach to the Diagnosis and Classification of Chronic Venous Disease

JAMES MAY, M.D., M.S., F.R.A.C.S., F.A.C.S.

Bosch Professor of Surgery, University of Sydney. Vascular Surgeon, Royal Prince Alfred Hospital, Sydney, Australia.
Endovascular Grafts; Upper Extremity Sympathectomy; Endovascular Treatment of Aortic Aneurysms

KENNETH E. MCINTYRE, JR., M.D.

Professor of Surgery, Division of Vascular Surgery, University of Texas Southwestern Medical Center at Dallas Southwestern Medical School. Chief, Vascular Surgery, St. Paul Medical Center, Dallas, Texas.
Patient Evaluation and Preparation for Amputation

W. BURLEY MCINTYRE, M.D.

Vascular Surgeon, Everett Clinic, Everett, Washington.
Cervicothoracic Vascular Injuries

MICHAEL A. McKUSICK, M.D.

Assistant Professor of Radiology, Mayo Graduate School of Medicine. Vascular and Interventional Radiologist, Mayo Clinic, Rochester, Minnesota.
Principles of Venography

ROBERT H. MEIER, III, M.D.

Director, Amputee Services of Colorado, SunSpectrum Out-patient Rehabilitation, Thornton, Colorado.
Rehabilitation of the Person with an Amputation

MARK H. MEISSNER, M.D.

Assistant Professor, Department of Surgery, University of Washington School of Medicine; Department of Vascular Surgery, Harborview Medical Center, Seattle, Washington.
Venous Duplex Scanning; Pathophysiology and Natural History of Acute Deep Venous Thrombosis

LOUIS M. MESSINA, M.D.

Professor of Surgery and Chief, Division of Vascular Surgery, University of California, San Francisco, School of Medicine. Attending Surgeon, UC San Francisco-Stanford Hospital, San Francisco, California.
Endarterectomy; Renal Artery Fibrodysplasia and Renovascular Hypertension

MARK MEWISSEN, M.D.

Clinical Associate Professor of Radiology, Medical College of Wisconsin. Interventional Radiologist, Wisconsin Heart and Vascular Clinics, Milwaukee, Wisconsin.
Interventional Treatments for Iliofemoral Venous Thrombosis

TIMOTHY A. MILLER, M.D., F.A.C.S.

Professor of Plastic and Reconstructive Surgery, University of California, Los Angeles, UCLA School of Medicine. Chief, Plastic and Reconstructive Surgery, West Los Angeles Veterans Administration Hospital, Los Angeles, California.
Excisional Operations for Chronic Lymphedema

MARC E. MITCHELL, M.D.

Assistant Professor of Surgery, Division of Vascular Surgery, University of Pennsylvania School of Medicine, Philadelphia, Pennsylvania.
Basic Considerations of the Arterial Wall in Health and Disease

GREGORY L. MONETA, M.D.

Professor of Surgery, Oregon Health Sciences University School of Medicine, Staff Surgeon, Veterans Affairs Medical Center, Portland, Oregon.
Natural History and Nonoperative Treatment of Chronic Lower Extremity Ischemia; Diagnosis of Intestinal Ischemia; Treatment of Acute Intestinal Ischemia Caused by Arterial Occlusions; Treatment of Chronic Visceral Ischemia; Pathophysiology of Chronic Venous Insufficiency; Nonoperative Treatment of Chronic Venous Insufficiency

WESLEY S. MOORE, M.D.

Professor of Surgery, University of California, Los Angeles, UCLA School of Medicine. Vascular Surgeon, UCLA Center for the Health Sciences, Los Angeles, California.
Fundamental Considerations in Cerebrovascular Disease; Indications, Surgical Technique, and Results for Repair of Extracranial Occlusive Lesions

MARK R. NEHLER, M.D.

Assistant Professor of Surgery, University of Colorado School of Medicine and University of Colorado Health Sciences Center, Denver, Colorado.
Cardiac Complications and Screening; Pathophysiology of Chronic Venous Insufficiency

AUDRA A. NOEL, M.D.

Division of Vascular Surgery, Mayo Clinic and Foundation, Rochester, Minnesota.
Lymphatic Reconstructions

SEAN P. O'BRIEN, M.D.

Vascular Surgery Fellow, MCP Hahnemann University Hospitals, Philadelphia, Pennsylvania.
Aortoenteric Fistulae

JEFFREY W. OLIN, D.O.

Chairman, Department of Vascular Medicine, Cleveland Clinic Foundation, Cleveland, Ohio.
Thromboangiitis Obliterans (Buerger's Disease)

KENNETH OURIEL, M.D.

Professor of Surgery, Ohio State University College of Medicine, Columbus. Chairman, Department of Vascular Surgery, The Cleveland Clinic Foundation, Cleveland, Ohio.
Perioperative Hemorrhage; Acute Limb Ischemia; Arterial Thromboembolism

MARC A. PASSMAN, M.D.

Fellow, Division of Vascular Surgery, Department of Surgery, University of North Carolina at Chapel Hill School of Medicine, Chapel Hill, North Carolina.
Physiologic Assessment of the Venous System

GRAHAM F. PINEO, M.D.

Professor of Medicine, University of Calgary Faculty of Medicine; Foothills Hospital, Calgary, Alberta, Canada.
Prevention and Medical Treatment of Acute Deep Venous Thrombosis

JOHN M. PORTER, M.D.

Professor of Surgery (Head), Oregon Health Sciences University School of Medicine, Portland, Oregon.
Natural History and Nonoperative Treatment of Chronic Lower Extremity Ischemia; Upper Extremity Ischemia: Approach to Diagnosis; Occlusive and Vasospastic Diseases Involving Distal Upper Extremity Arteries—Raynaud's Syndrome; Treatment of Acute Intestinal Ischemia Caused by Arterial Occlusions; Treatment of Chronic Visceral Ischemia; Pathophysiology of Chronic Venous Insufficiency; Nonoperative Treatment of Chronic Venous Insufficiency

WILLIAM J. QUIÑONES-BALDRICH, M.D.

Professor of Surgery, University of California, Los Angeles, UCLA School of Medicine. Vascular Surgeon, UCLA Center for the Health Sciences, Los Angeles, California.
Principles of Thrombolytic Therapy; Indications, Surgical Technique, and Results for Repair of Extracranial Occlusive Lesions

RICARDO T. QUINTOS II, M.D.

Clinical Research Fellow, Montefiore Medical Center, New York, New York.
Techniques for Thromboembolectomy of Native Arteries and Bypass Grafts; Secondary Arterial Reconstructions in the Lower Extremity

SESHADRI RAJU, M.D.

Emeritus Professor of Surgery, University of Mississippi School of Medicine. Honorary Surgeon, University Hospital, Jackson, Mississippi.
Surgical Treatment of Deep Venous Valvular Incompetence

DANIEL J. REDDY, M.D.

Head, Division of Vascular Surgery, Program Director, Vascular Fellowship, Henry Ford Hospital, Detroit, Michigan.
Infected Aneurysms

JASON P. REHM, M.D.

Resident in General Surgery, University of Nebraska Medical Center, Omaha, Nebraska.
Arterial Aneurysms: Etiologic Considerations

JEFFREY M. RHODES, M.D.

Clinical Fellow, Division of Vascular Surgery, Mayo Clinic, Rochester, Minnesota.
Management of Perforator Vein Incompetence

MICHAEL A. RICCI, M.D.

Associate Professor of Surgery, University of Vermont College of Medicine. Director, Vascular Diagnostic Laboratory, Fletcher Allen Health Care, Inc., Burlington, Vermont.
The Role of Noninvasive Studies in the Diagnosis and Management of Cerebrovascular Disease

LAYTON F. RIKKERS, M.D.

A.R. Curreri Professor and Chairman, University of Wisconsin Medical School, Madison, Wisconsin.
Operative Therapy for Portal Hypertension

THOMAS S. RILES, M.D.

Professor of Surgery and Director, Division of Vascular Surgery, New York University School of Medicine. Attending Physician, Tisch Hospital and Bellevue Hospital, New York, New York.
Overview, Section XIII; Peripheral Arteriovenous Fistulae; Congenital Vascular Malformations

STEVEN P. RIVERS, M.D.

Associate Professor of Surgery, Albert Einstein College of Medicine of Yeshiva University, Bronx, New York. Division of Vascular Surgery, Montefiore Medical Center, New York, New York.
Nonocclusive Mesenteric Ischemia

THOM W. ROOKE, M.D.

Associate Professor, Mayo Graduate School of Medicine. Head, Section of Vascular Medicine, Mayo Clinic, Rochester, Minnesota.
Uncommon Arteriopathies; Nonoperative Management of Chronic Lymphedema

ROBERT J. ROSEN, M.D.

Associate Professor of Radiology, New York University School of Medicine. Director of Vascular and Interventional Radiology, New York University Medical Center, New York, New York.

Peripheral Arteriovenous Fistulae; Congenital Vascular Malformations

CARLO RUOTOLO, M.D.

Assistant Professor of Surgery, Pitre-Salpetriere University. Staff Surgeon, Department of Vascular Surgery, Pitre-Salpetriere Hospital, Paris, France.

Arterial Complications of Thoracic Outlet Compression

ROBERT B. RUTHERFORD, M.D., F.A.C.S., F.R.C.S.(Glasg.)

Emeritus Professor of Surgery, University of Colorado School of Medicine, Denver, Colorado.

Initial Patient Evaluation: The Vascular Consultation; Evaluation and Selection of Patients for Vascular Interventions; Integrated Assessment of Results: Standardized Reporting of Outcomes and the Computerized Vascular Registry; Basic Vascular Surgical Techniques; Causalgia and Post-traumatic Pain Syndromes; Extra-anatomic Bypass; Endovascular Interventions in the Management of Chronic Lower Extremity Ischemia; Lumbar Sympathectomy: Indications and Technique; Subclavian-Axillary Vein Thrombosis; Abdominal Aortic and Iliac Aneurysms; Diagnostic Evaluation of Arteriovenous Fistulae; Extracranial Fibromuscular Arterial Dysplasia; Interventional Treatments for Iliofemoral Venous Thrombosis

DAVID SACKS, M.D.

Head, Interventional Radiology, The Reading Hospital and Medical Center, West Reading, Pennsylvania.

Angiography and Percutaneous Vascular Interventions: Complications and Quality Improvement

LUIS A. SANCHEZ, M.D.

Associate Professor of Surgery, Albert Einstein College of Medicine of Yeshiva University, Bronx, New York. Chief of Vascular Surgery, Jack D. Weiler Hospital, New York, New York.

Secondary Arterial Reconstructions in the Lower Extremity

RICHARD J. SANDERS, M.D.

Clinical Professor of Surgery, University of Colorado School of Medicine and Health Sciences Center. Attending Surgeon, Rose Medical Center, Denver, Colorado.

Neurogenic Thoracic Outlet Syndrome

ALVIN H. SCHMAIER, M.D.

Professor, Hematology and Oncology Division, Department of Internal Medicine and Pathology, University of Michigan Medical School. Director, Coagulation Laboratory, University of Michigan Medical Center, Ann Arbor, Michigan.

Vascular Thrombosis Due to Hypercoagulable States

PETER A. SCHNEIDER, M.D.

Clinical Assistant Professor of Surgery, University of Hawaii John A. Burns School of Medicine. Vascular and Endovascular Surgeon, Hawaii Permanente Medical Group, Honolulu, Hawaii.

Endovascular Interventions in the Management of Chronic Lower Extremity Ischemia; Extracranial Fibromuscular Arterial Dysplasia

LEWIS B. SCHWARTZ, M.D.

Assistant Professor of Surgery, University of Chicago Pritzker School of Medicine, Chicago, Illinois.

Anastomotic and Other Pseudoaneurysms

GARY R. SEABROOK, M.D.

Associate Professor, Division of Vascular Surgery, Medical College of Wisconsin, Milwaukee, Wisconsin.

Management of Foot Lesions in the Diabetic Patient

CHARLES J. SHANLEY, M.D.

Assistant Professor of Surgery, University of Michigan Medical School, Ann Arbor, Michigan.

Pulmonary Complications in Vascular Surgery

CYNTHIA K. SHORTELL, M.D.

Assistant Professor of Surgery, University of Rochester School of Medicine and Dentistry. Attending Surgeon, Strong Memorial Hospital and Rochester General Hospital, Rochester, New York.

Perioperative Hemorrhage

ANTON N. SIDAWY, M.D.

Professor of Surgery, George Washington University School of Medicine and Health Sciences and Georgetown University School of Medicine. Chief, Surgical Services, Veterans Affairs Medical Center, Washington, DC.

Basic Considerations of the Arterial Wall in Health and Disease

DONALD SILVER, M.D.

Emeritus Professor of Surgery, University of Missouri-Columbia School of Medicine, Columbia, Missouri.

Principles of Hemostasis; Antithrombotic Therapy; Diagnosis of Intestinal Ischemia

SUZANNE M. SLONIM, M.D.

Assistant Professor of Radiology, Stanford University School of Medicine, Stanford, California. Chief, Cardiovascular and Interventional Radiology, Palo Alto Veterans Administration Medical Center, Palo Alto, California.

Radiographic Evaluation and Treatment of Renovascular Disease

RICHARD K. SPENCE, M.D., F.A.C.S.

Director of Surgical Education, Baptist Health System, Birmingham, Alabama.

Blood Loss and Transfusion in Vascular Surgery

JAMES C. STANLEY, M.D.

Professor of Surgery, University of Michigan Medical School. Head, Section of Vascular Surgery, University Hospital, Ann Arbor, Michigan.

Splanchnic Artery Aneurysms; Arterial Fibrodysplasia; Renal Artery Fibrodysplasia and Renovascular Hypertension

ANTHONY STANSON, M.D.

Associate Professor of Radiology, Mayo Medical School. Consultant, Department of Diagnostic Radiology, Mayo Clinic and Mayo Foundation, Rochester, Minnesota.

Diagnosis and Management of Tumors of the Inferior Vena Cava

RONALD J. STONEY, M.D.

Professor of Surgery, Division of Vascular Surgery, University of California, San Francisco, School of Medicine, San Francisco, California.

Endarterectomy; The Arterial Autograft

D. EUGENE STRANDNESS, JR., M.D.

Professor, Department of Surgery, University of Washington School of Medicine, Seattle, Washington.

Pathophysiology and Natural History of Acute Deep Venous Thrombosis

DAVID S. SUMNER, M.D.

Distinguished Professor of Surgery Emeritus, Southern Illinois University School of Medicine, Springfield, Illinois.

Essential Hemodynamic Principles; Physiologic Assessment of Peripheral Arterial Occlusive Disease; Evaluation of Acute and Chronic Ischemia of the Upper Extremity; Hemodynamics and Pathophysiology of Arteriovenous Fistulae; Diagnostic Evaluation of Arteriovenous Fistulae

GENE Y. SUNG, M.D.

Assistant Professor, Neurology, University of Colorado School of Medicine. Director, Neurocritical Care and Stroke, University of Colorado Health Sciences Center, Denver, Colorado.

Diagnosis, Evaluation, and Medical Management of Patients with Ischemic Cerebrovascular Disease

SCOTT W. TABER, M.D.

Assistant Professor of Surgery, University of Louisville School of Medicine, Department of Surgery, Louisville, Kentucky.

Long-Term Venous Access

LLOYD M. TAYLOR, JR., M.D.

Professor of Surgery, Oregon Health Sciences University School of Medicine, Portland, Oregon.

Natural History and Nonoperative Treatment of Chronic Lower Extremity Ischemia; Upper Extremity Ischemia: Approach to Diagnosis; Treatment of Acute Intestinal Ischemia Caused by Arterial Occlusions; Treatment of Chronic Visceral Ischemia

JONATHAN B. TOWNE, M.D.

Professor and Chairman, Division of Vascular Surgery, Medical College of Wisconsin, Milwaukee, Wisconsin.

The Autogenous Vein; Profundaplasty; Management of Foot Lesions in the Diabetic Patient

J. JEAN E. TURLEY, M.D., F.R.C.S.(P)

Associate Professor, Department of Medicine, University of Toronto Faculty of Medicine. Attending Physician, St. Michael's Hospital, Toronto, Ontario, Canada.

Ischemic Neuropathy

WILLIAM W. TURNER, JR., M.D.

James D. Hardy Professor and Chairman, Department of Surgery, The University of Mississippi School of Medicine, Jackson, Mississippi.

Acute Vascular Insufficiency Due to Drug Injection

R. JAMES VALENTINE, M.D.

Associate Professor, University of Texas Southwestern Medical Center at Dallas Southwestern Medical School. Attending Surgeon, Parkland Memorial Hospital, Zale Lipshy University Hospital, Veterans Affairs Medical Center, Dallas, Texas.

Anatomy of Commonly Exposed Arteries; Acute Vascular Insufficiency Due to Drug Injection

FRANK J. VEITH, M.D.

Professor of Surgery, Albert Einstein College of Medicine of Yeshiva University, Bronx, New York. Chief, Vascular Surgical Services, Montefiore Medical Center, New York, New York.

Techniques for Thromboembolectomy of Native Arteries and Bypass Grafts; Secondary Arterial Reconstructions in the Lower Extremity; Nonocclusive Mesenteric Ischemia

OMaida C. VELÁZQUEZ, M.D.

Instructor in Surgery, University of Pennsylvania School of Medicine, Philadelphia, Pennsylvania.

Magnetic Resonance Imaging and Angiography

TERRI J. VRTISKA, M.D.

Department of Diagnostic Radiology, Mayo Clinic and Foundation, Rochester, Minnesota.

Surgical Treatment of Superior Vena Cava Syndrome

HEINZ W. WAHNER, M.D., F.A.C.P.

Professor Emeritus of Radiology, Mayo Clinic, Rochester, Minnesota.

Clinical Diagnosis and Evaluation of Lymphedema

THOMAS W. WAKEFIELD, M.D.

Professor, Section of Vascular Surgery Department of Surgery, University of Michigan Medical School. Director, Non-invasive Diagnostic Vascular Unit, University of Michigan Medical Center. Staff Surgeon, Ann Arbor Veterans Administration Medical Center, Ann Arbor, Michigan.

Arterial Fibrodysplasia; Vascular Thrombosis Due to Hypercoagulable States

DANIEL B. WALSH, M.D.

Professor of Surgery, Dartmouth Medical School, Hanover, New Hampshire. Vice Chair, Department of Surgery, Dartmouth-Hitchcock Medical Center, Lebanon, New Hampshire.

Technical Adequacy and Graft Thrombosis

JAMES C. WATSON, JR., M.S., M.D.

Clinical Instructor, University of Washington School of Medicine; Advanced Surgical Associates, PLLC; Northwest Hospital and Providence Medical Center, Seattle, Washington.

Compartment Syndrome: Pathophysiology, Recognition, and Management

FRED A. WEAVER, M.D., F.A.C.S.

Associate Professor of Surgery, University of Southern California School of Medicine. Chief, Division of Vascular Surgery, USC University Hospital, Los Angeles, California.

Vascular Injuries of the Extremities

ERIC S. WEINSTEIN, M.D.

Assistant Clinical Professor, University of Colorado School of Medicine, Denver. Attending Physician, Swedish Medical Center, Englewood, Colorado; and Rose Medical Center and Porter Medical Center, Denver, Colorado.

Thromboendoarterectomy for Lower Extremity Arterial Occlusive Disease; Neurogenic Thoracic Outlet Syndrome

KURT WENGERTER, M.D.

Director of the Vascular Laboratory, Englewood Hospital and Medical Center, Englewood, New Jersey.

Biologic Grafts for Lower Limb Revascularization

GEOFFREY H. WHITE, M.D., F.R.A.C.S.

Clinical Associate Professor, University of Sydney. Vascular Surgeon, Department of Vascular Surgery, Royal Prince Alfred Hospital, Sydney, Australia.

Endovascular Grafts; Endovascular Treatment of Aortic Aneurysms

JOHN V. WHITE, M.D.

Chairman, Department of Surgery, Lutheran General Hospital, Park Ridge, Illinois.

Integrated Assessment of Results: Standardized Reporting of Outcomes and the Computerized Vascular Registry

THOMAS A. WHITEHILL, M.D.

Associate Professor of Surgery, University of Colorado School of Medicine. Chief of Vascular Surgery, Veterans Administration Medical Center, Denver, Colorado.

Uncommon Disorders Affecting the Carotid Arteries

WALTER M. WHITEHOUSE, JR., M.D.

Clinical Associate Professor of Surgery, University of Michigan Medical School. Chairman, Department of Surgery, St. Joseph Mercy Hospital, Ann Arbor, Michigan.

Upper Extremity Revascularization

ANTHONY D. WHITEMORE, M.D.

Professor of Surgery, Harvard Medical School. Chief of Vascular Surgery, Brigham and Women's Hospital, Boston, Massachusetts.

Infrainguinal Bypass

KENT WILLIAMSON, M.D.

Surgery Resident, Oregon Health Sciences University School of Medicine, Portland, Oregon.

Upper Extremity Ischemia: Approach to Diagnosis

GARY G. WIND, M.D.

Professor of Surgery, Uniformed Services University of the Health Sciences. Staff Surgeon, National Naval Medical Center, Bethesda, Maryland.

Anatomy of Commonly Exposed Arteries

CHARLES L. WITTE, M.D.

Professor of Surgery, University of Arizona College of Medicine, Tucson, Arizona.

Circulatory Dynamics and Physiology of the Lymphatic System

MARLYS H. WITTE, M.D.

Professor of Surgery and Director, Medical Student Research Program, University of Arizona College of Medicine, Tucson, Arizona.

Circulatory Dynamics and Pathophysiology of the Lymphatic System

JAMES S. T. YAO, M.D., Ph.D.

Magerstadt Professor of Surgery, Northwestern University Medical School. Acting Chair, Department of Surgery, Northwestern Memorial Hospital, Chicago, Illinois.

Occupational Vascular Problems

ALBERT E. YELLIN, M.D., F.A.C.S.

Professor of Surgery, University of Southern California School of Medicine. Associate Chief of Staff, Medical Director of Surgical Services, Los Angeles County-University of Southern California Medical Center, Los Angeles, California.

Vascular Injuries of the Extremities

CHRISTOPHER K. ZARINS, M.D.

Chidester Professor of Surgery, Stanford University School of Medicine. Chief of Vascular Surgery, Stanford University Medical Center, Stanford, California.

Artery Wall Pathology in Atherosclerosis

GERALD B. ZELENOCK, M.D.

Professor of Surgery, Section of Vascular Surgery, University of Michigan Medical School; Attending Staff, Section of Vascular Surgery, University Hospital, and Vascular Surgery Service, Veterans Administration Hospital, Ann Arbor, Michigan.

Pulmonary Complications in Vascular Surgery; Splanchnic Artery Aneurysms

R. EUGENE ZIERLER, M.D.

Professor of Surgery, Department of Surgery, Division of Vascular Surgery, University of Washington School of Medicine. Attending Staff, University of Washington Medical Center, Seattle, Washington.

Physiologic Assessment of Peripheral Arterial Occlusive Disease

ROBERT M. ZWOLAK, M.D., Ph.D.

Associate Professor, Dartmouth Medical School, Hanover, New Hampshire. Director, Noninvasive Vascular Laboratory, Mary Hitchcock Memorial Hospital, Lebanon, New Hampshire.

Arterial Duplex Scanning



P R E F A C E

The fifth edition of *Vascular Surgery* comes at the millennium, a time when everyone tends to reflect on changes occurring over the past century, the past 25 years, or at least the past decade. I will spare the reader this and will focus primarily on the changes that have occurred in the practice of vascular surgery since the fourth edition and their impact on the current edition.

The inevitable trend of more vascular surgery being done by fewer but better-trained surgeons, who are more committed to this field as their primary or sole activity, has continued. This is just as well, for it offsets other negative trends. The pressure from superimposed cost-containment measures has resulted not only in more conservative indications for intervention, which is mostly appropriate, but also in far less compensation per procedure, which is not. Vascular surgery, dealing as it does primarily with an elderly population (e.g., Medicare participants) has never been compensated on the same scale as some other surgical specialties with which it has been targeted. Endovascular procedures, on the other hand, have not suffered the same fate, even though their relative costs have climbed because of the new technology involved (e.g., better imaging equipment, special devices, catheters and introducers, and other improvements). While the overall number of traditional (i.e., open) vascular surgical procedures might have declined, from the inroads made by managed care and endovascular procedures, this has been offset, for the most part, in the majority of vascular surgery practices by the dwindling numbers of part-time or "occasional" vascular surgeons, the aging of the population, and the increasing degree to which vascular surgeons in North America and Europe have acquired the necessary skills with which to perform endovascular interventions themselves or in collaboration with interventional radiologists. This latter trend was given a boost by the advent of endografts that, at the outset at least, *required* involvement by vascular surgeons but that also honed their skills at manipulations under fluoroscopic monitoring to the point where balloon dilations and stenting and other simpler procedures were reasonably within reach.

This change is reflected in this new edition in an expanded coverage of *endovascular procedures* and *alternative imaging options* in addition to angiography, topics written principally by surgeons. New chapters are devoted to the various types of endovascular grafts, to the endovascular treatment of abdominal aortic aneurysms (AAAs), to the complications of angiography and of endovascular interventions, and to endovascular interventions for lower extremity occlusive disease. Endovascular treatments are also presented in other chapters dealing with the management of variceal hemorrhage, renovascular disease, acute deep venous thrombosis, and chronic large vein obstruction.

Despite the inroads made by imaging-based radiologists into the field of noninvasive vascular diagnosis, vascular surgeons have managed to keep a firm control on duplex scanning by showing the way in extending and standardizing its clinical applications (e.g., as the sole preoperative imaging method for most cases of carotid endarterectomy and in selected cases of lower extremity revascularization). Vascular surgeons have also demonstrated the continued value of certain of the indirect physiologic tests, which are less expensive than duplex scans but foreign to most radiologists. Nevertheless, in this edition separate chapters describe peripheral arterial and venous duplex scanning, and the application in the diagnosis of mesenteric and renal disease has been given expanded coverage.

Other trends that had just surfaced during the writing of the last edition have continued. Thrombolytic therapy has continued to flourish and has become an integral part of the management of acute arterial thromboses, even though several randomized trials have had difficulty in showing advantages, in overall results, over surgery. These disappointing trial results are partly due to a higher than expected (but "real life?") failure to gain access and achieve lysis (i.e., initial technical failure) and to flaws in protocol design, particularly the linking of thrombolysis with the ultimate treatment of the underlying lesion by percutaneous transluminal angioplasty (PTA), even when surgery would have been more effective. Post hoc analysis has helped to identify the settings in which catheter-directed thrombolysis is likely to be of benefit and demonstrated the clear need for careful case selection. Two chapters address these issues, and another one fully discusses the use of catheter-directed thrombolysis in deep venous thrombosis.

Angioaccess, particularly for hemodialysis, continues to play a major role in the practice of many vascular surgeons, and new techniques that improve the opportunity to create autogenous fistulae and enhance the patency of prosthetic shunts have been introduced. Periodic surveillance of surgical and endovascular revascularizations has become a standard of care, even though appropriate reimbursement for these efforts has lagged shamefully behind. The criteria for identifying critical restenoses and the most cost-effective monitoring intervals need to be better defined, but reasonable options have been identified. The advantages and limitations of PTA and stenting for renal artery stenosis have become better recognized, and its relative role vis à vis surgical revascularization has been better delineated. However, the preferred techniques for renal revascularization have clearly shifted away from a clear dominance by aortorenal vein bypass to relatively more endarterectomies, prosthetic grafts, and extra-anatomic bypasses, each used selectively in certain settings.

Carotid endarterectomy has survived its challenge from