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Robert B. Rutherford**



Vascular Surgery

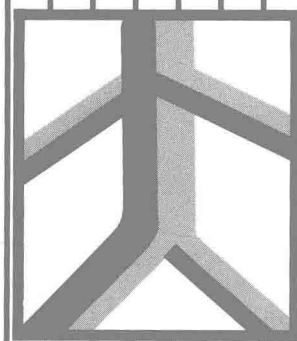
THIRD EDITION

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THIRD EDITION

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Vascular Surgery

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Vascular Surgery

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*To current and future vascular surgeons,
committed by training and practice
to the accurate diagnosis and proper management
of vascular diseases.*

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In Situ Saphenous Vein Arterial Bypass

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Nonoperative Management of Acute Venous Thromboembolism; Operative Management of Perforator Vein Incompetence

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Introduction, Patient Evaluation, and Selection of Procedure (Section XIII); Total Portosystemic Shunts; Management of Ascites and Hepatic Encephalopathy

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Management of Uncommon Lesions Affecting the Extracranial Vessels

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Coiling and Kinking of the Carotid Artery

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Total Portosystemic Shunts

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Endoscopic Treatment of Esophageal Varices; Selective Shunts

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Renal Artery Aneurysms and Arteriovenous Fistulas

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Expanded Polytetrafluoroethylene Vascular Grafts; Secondary Arterial Reconstructions in the Lower Extremity; Amputation versus Revascularization

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Upper Extremity Revascularization

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Occupational Vascular Problems; Chronic Intestinal Ischemia

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Artery Wall Pathology in Atherosclerosis

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Splanchnic Artery Aneurysms

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Fogarty Catheter Thrombectomy (Chapter 23)

Preface

The five years since the second edition of *Vascular Surgery* have witnessed the final stages of maturation of vascular surgery as a specialty, at least in North America, with formal recognition by the American College of Surgeons, well-defined training requirements embodied in approved fellowships, board examinations with qualification (after 1989) only by approved fellowship training, a flourishing monthly journal, and representation on the governing bodies of surgery. That vascular surgery is a growing, thriving speciality is indicated by vascular surgery manpower studies that, among other things, showed that the total number of vascular operations in the United States had increased from 360,000 in 1979 to 571,000 in 1985, a much greater rate than other extremity operations, abdominal operations, or head and neck surgery. The proportion of vascular operations now being performed by specialists in vascular surgery has steadily climbed and is between 50 per cent and 75 per cent for most major vascular procedures. During this period, vascular repairs for trauma, lower extremity bypass, aortoiliac reconstruction, and abdominal aortic aneurysm repair all increased greatly, along with carotid endarterectomy, although the increase in this latter operation has now been somewhat blunted by controversy (see Chapter 130). On the other hand, sympathectomy, embolectomy, portosystemic shunt, and aortorenal bypass all show either a steady or a recent decline, all related to competition from alternative forms of therapy. Venous reconstructive surgery has increased but has not nearly fulfilled the promise predicted for it at the time of the last edition. Angioaccess surgery continues to increase, whereas traumatic arteriovenous (AV) fistulas are rarer and the surgical approach to congenital AV fistulas has become steadily more conservative. Lower extremity bypass with autogenous vein has become the backbone of increasingly successful limb salvage efforts now being carried down into the foot. On the other hand, prosthetic grafts and modified heterografts have not improved to the point at which they contribute significantly to the long-term success of distal (infrageniculate) bypass, and endothelial seeding still is not a practical answer to this dilemma.

Equally important to changes in operative approaches have been the technological advances in vascular diagnosis. Noninvasive hemodynamic testing has been further refined and has become accepted as an *essential* component of the evaluation of patients with vascular disease, before, during, and after therapeutic intervention, determining the appropriate operation, its technical and hemodynamic success, and the later detection of the failing graft, respectively. Imaging techniques, particularly ultrasound, computed tomography, and magnetic resonance imaging, are playing an increasingly important role in defining every facet of vascular disease, with the duplex scanner becoming a dominant diagnostic weapon, especially with the additional technological advance that allows the color-coding of velocity signals from entire imaged vessels. Angiographers have converted the digital subtraction technique from its originally intended purpose, vascular imaging following *venous* contrast injection, to provide better arteriograms with lesser contrast following *arterial* injection. In addition to improvement and refinements in almost all vascular operations, the risk of these procedures, particularly as expressed in mortality rates, has continued its impressive decline, thanks to the extended application of perioperative monitoring and intensive care technology to those patients undergoing major procedures.

As one might expect, this third edition reflects these many new advances as well as other significant changes in the management of vascular diseases. Moreover, the book has undergone a major reorganization. *Basic* hemodynamic principles and diagnostic