

Long Term Results of Arterial Revascularization with Omniflow II® Biosynthetic Grafts: A Single Center Experience

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Abstract

Aim: The aim of this study is to analyze the long-term outcomes of above-knee femoro-popliteal bypass procedures with Omniflow® II biosynthetic grafts. Primary patency and graft related complications were the end points of the study.

Methods: Between January 2012 and January 2021, a total of 50 patients (42 males, 8 females) were revascularized using an in-situ Omniflow® II graft. Demographic, clinical, operative and postoperative characteristics of the patients were analyzed retrospectively.

Results: Mean age was 63.8 ± 10.1 (range 40-82) years. Fifty above-knee femoropopliteal bypass procedures were performed. Four patients (8%) were operated on due to a previous vascular graft infection where 8 (16%) were operated on due to a previous occlusion. Primary patency rate was 88%. Early graft thrombosis occurred in 2 (4%) patients where late graft stenosis unrelated to the anastomotic sites was encountered in 1 (2%) patient. An endarterectomy on either the proximal or distal site of the anastomosis were performed in 12 (24%) patients. Mean follow-up was 32.9 ± 20.8 (range 12-90) months. Three (6%) patients died due to a COVID-19 infection. No graft infection nor mortality related to arterial bypass procedures was encountered.

Conclusion: The Omniflow® II biosynthetic graft provides superior results in treatment of above-knee femoro-popliteal bypass procedures with high patency rates and low incidence of graft infection and aneurysm formation.

Keywords: Biosynthetic graft, vascular grafting, revascularization, peripheral arterial disease

1. Introduction

Patients with peripheral arterial disease (PAD) have a poor circulation due to decreased arterial perfusion. The arterial blood flow to the distal extremity is restricted most frequently by systemic atherosclerosis. Its prevalence is 3-10% between 40-59 years and 15-20% over 70 years¹. The most significant risk factors for PAD are diabetes mellitus (DM), hypertension (HT), hyperlipidemia (HL), chronic kidney disease (CKD), and smoking². In addition, there is an increased rate of myocardial infarction, ischemic stroke, and cardiovascular death in patients with PAD³.

There is a remarkable elevated risk of adverse limb events like ischemic ulceration and gangrene unless treated. Revascularization deemed mandatory, particularly in patients with more advanced symptoms and presentations. Duplex ultrasonography, computed tomography angiography (CTA), magnetic resonance angiography or conventional peripheral angiography should be performed to diagnose and define the anatomy before revascularization. Though endovascular approaches have extended the invasive treatment modalities in peripheral arterial occlusive disease, surgical interventions must be considered especially for long occlusive disease, aneurysm formation, vascular graft infection and failure of endovascular treatment.

Despite the fact that superiority of the autogenous grafts are well-known, prosthetic grafts should be the selected conduit type in a variety of patients especially when autogenous grafts are not accessible, available or suitable⁴. Since 1983, the Omniflow® vascular grafts have been in clinical practice and advances in technology throughout this time period led to the current Omniflow® II vascular graft (OVG)⁵⁻⁷. Omniflow® II (Bio Nova International, Victoria, Australia) is created by using cross linked ovine collagen and an endoskeleton made of polyester mesh which

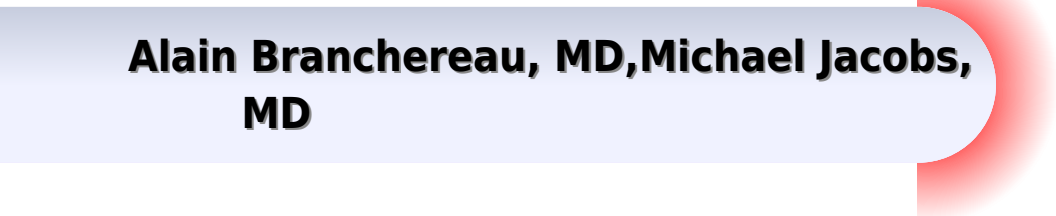
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Long Term Results Of Arterial Interventions

**Alain Branchereau, MD, Michael Jacobs,
MD**



Long Term Results Of Arterial Interventions:

Long-Term Results of Arterial Interventions Alain Branchereau, MD, Michael Jacobs, MD, 1997-10-07 This volume is particularly valuable as a current standard reference. It covers all the major vascular operations: carotid endarterectomy, aortoiliac reconstructions and infrainguinal bypasses in situ and reversed vein, Dacron and PTFE prosthetic thoracic and abdominal bypasses matching each to its competing endovascular procedure. In addition, it provides excellent long-term data on such less common procedures as internal carotid bypass, vertebral artery revascularization, adjunctive procedures to enhance the patency of infrainguinal prosthetic bypass and percutaneous intentional extraluminal revascularization. Finally, this framework is reinforced by in-depth chapters on current non-interventional management, surveillance programs to enhance long-term patency and the ultimate challenge for all practicing vascular surgeons: the management of infected aortic grafts. Such clear, comprehensive and current analysis should be of considerable and on-going value both by helping vascular surgeons to make more effective decisions and to more knowledgeably discuss functional results, complication risks, life expectancy and surgical outcome issues with the patient and family.

Peripheral Arterial Interventions Nicolas W. Shamma, 2022-10-13 This book examines new technologies, device and pharmacologic that have evolved over the past few years in treating peripheral arterial disease. Chapters offer optimal strategies to treat PAD supported by peer-reviewed data. The pillars of this strategy will focus on a changing vessel compliance to allow better lumen expansion, less recoil and dissections and less bailout stenting. Chapters also review embolic protection devices and apply the adjunctive use of anti-proliferative therapy to maintain good long-term outcomes. In addition, the book reviews drug-coated balloons and drug-eluting stent technologies and other means of drug delivery into the vessel wall. The goal of this book is to discuss all these emerging technologies under the strategy of treating patients with the focus on both acute and long-term outcomes. Featuring world-renown experts, this book offers a critical and comprehensive overview of the current data and future directions that would pave the way for optimal PAD management. *Peripheral Arterial Interventions* is an essential resource for physicians, residents, fellows and medical students in cardiology, radiology, vascular surgery, primary care and health promotion and disease prevention as well as internal and vascular medicine specialists.

Cardiovascular Interventions in Clinical Practice Jürgen Haase, Hans-Joachim Schäfers, Horst Sievert, Ron Waksman, 2010-04-01 Until the publication of this exciting volume, new treatment modalities in the rapidly growing field of interventional cardiology were described based on individual research findings. Now a multidisciplinary team of international experts puts catheter-based treatment techniques in context by exploring the pathobiology of specific diseases alongside a discussion of imaging tools and functional tests and a comparison to alternative treatment approaches provided by cardiovascular surgery. This comprehensive overview of interventional cardiology represents a landmark in the field.

Textbook of Interventional Cardiology Samir Kapadia, 2017-07-17 Interventional Cardiology is an extensive, richly illustrated guide to this field of

medicine The book is edited by internationally recognised experts led by Professor Samir Kapadia This book provides comprehensive coverage of all aspects of interventional cardiology across five sections further divided into 88 chapters The first section covers the evolution periprocedural pharmacology beginning with chapters on the history of coronary intervention and concluding with clinical cases The second section covers specific coronary interventions taking either a disease based or an anatomical approach The chapters also provide information on individual patient groups such as the elderly and diabetics Detailed chapters on a range of devices used in interventional cardiology are included in this section Further sections cover a wide range of peripheral and structural interventions and the final chapter on general topics includes radiation protection prevention and management of bleeding and haemodynamic essentials Enhanced by 700 full colour images Interventional Cardiology is an authoritative resource for all cardiologists Key Points Comprehensive illustrated guide to interventional cardiology Edited by internationally recognised experts led by Prof Samir Kapadia 700 full colour images Manual of Peripheral Vascular Intervention Ivan P. Casserly, Ravish Sachar, Jay S. Yadav, 2005 This manual is a practical how to guide to vascular interventional procedures for all arteries and veins outside the coronary vascular system The book provides the information needed to evaluate patients and perform procedures and describes the actual techniques used by experienced practitioners including anticoagulants antithrombotics wires guides angioplasty and stents More than 400 illustrations complement the text Chapters on each artery cover indications for interventional procedures vascular anatomy access diagnostic angiography and specific interventional techniques Complications and risks of restenosis are also discussed The book also includes a chapter on training and credentialing in peripheral vascular intervention

Image-Guided Interventions E-Book Matthew A. Mauro, Kieran P.J. Murphy, Kenneth R. Thomson, Anthony C. Venbrux, Robert A. Morgan, 2013-09-09 2014 BMA Medical Book Awards Highly Commended in Radiology category Image Guided Interventions a title in the Expert Radiology Series brings you in depth and advanced guidance on all of today's imaging and procedural techniques Whether you are a seasoned interventionalist or trainee this single volume medical reference book offers the up to the minute therapeutic methods necessary to help you formulate the best treatment strategies for your patients The combined knowledge of radiology experts from around the globe provides a broad range of treatment options and perspectives equipping you to avoid complications and put today's best approaches to work in your practice the authors and editors have succeeded in providing a book that is both useful instructive and practical Reviewed by RAD Magazine March 2015 Formulate the best treatment plans for your patients with step by step instructions on important therapeutic radiology techniques as well as discussions on equipment contrast agents pharmacologic agents antiplatelet agents and protocols Make effective clinical decisions with the help of detailed protocols classic signs algorithms and SIR guidelines Make optimal use of the latest interventional radiology techniques with new chapters covering ablation involving microwave and irreversible electroporation aortic endografts with fenestrated grafts and branch fenestrations thoracic

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may publish up to 6 weeks following the publication date Complications of Cardiovascular Procedures Mauro Moscucci,2012-03-28 This textbook provides interventional cardiologists endovascular interventionalists and physicians in training with a comprehensive resource on the prevention and management of complications in interventional cardiology The book focuses specifically on risk factors prevention and management with conventional and or with bailout techniques and devices It includes many images of common and rare complications and of devices The first section on general principles includes quality assurance training requirements legal considerations adjunctive pharmacotherapy and conscious sedation Subsequent sections cover general complications of invasive procedures and complications of specific coronary interventions noncoronary cardiac interventions peripheral vascular procedures pediatric interventions and electrophysiology procedures A companion website includes videos of over 30 complications and bailout techniques Grossman & Baim's Cardiac Catheterization, Angiography, and Intervention Mauro Moscucci,2020-09-10 The leading comprehensive reference on cardiac catheterization through eight outstanding editions Grossman Baim s Cardiac Catheterization Angiography and Intervention Ninth Edition continues to keep you up to date with every facet of this fast changing field Designed for quick access and easy reference this text offers expert overviews of the theoretical and practical aspects of clinical issues with emphasis given to hemodynamic data and tracings and interventional procedures An impressive multimedia library with new videos and cases make this reference even more valuable for cardiologists and interventional cardiologists at all levels of experience *Index Medicus* ,2004 Vols for 1963 include as pt 2 of the Jan issue Medical subject headings **Guide to Peripheral and Cerebrovascular Intervention** Deepak L. Bhatt,2004 Provides a highly illustrated technical overview of endovascular procedures Each chapter contains an overview of a specific area supplemented by tables line diagrams and angiograms

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Advanced Therapy in Hypertension and Vascular Disease Emile R. Mohler (III.),2006 Provides a resource for health care professionals who evaluate and manage patients with hypertension Topics include hypertension in adolescents treatment of hypertension in athletes hypertension and weight loss salt and dietary change to control blood pressure and more

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