

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

**Debabrata Mukherjee, Eric
Bates, Marco Roffi, David Moliterno**



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.

Complex Cases in Peripheral Vascular Interventions Martin Schillinger, Erich Minar, 2010-06-15 This new title provides a systematic review of complex cases in peripheral vascular interventions. PVI, a minimal invasive endovascular approach to treating peripheral arteries. This increasingly evolving area in interventional therapies offers reduced risk for complications compared to conventional surgery and takes advantage of advanced techniques.

Year Book of Vascular Surgery 2012 Gregory L. Moneta, 2012-11-01 The Year Book of Vascular Surgery brings you abstracts of the articles that reported the year's breakthrough developments in vascular surgery carefully selected from more than 500 journals worldwide. Expert commentaries evaluate the clinical importance of each article and discuss its application to your practice. There's no faster or easier way to stay informed. Hot topics include Coronary Disease, Epidemiology, Vascular Laboratory and Imaging, Carotid and Cerebrovascular Disease and Grafts and Graft Complications.

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 endografting TEVAR catheter based cancer therapies involving drug eluting beads sacroiliac joint injections bipedal lymphangiography pediatric gastrostomy and gastrojejunostomy and peripartum hemorrhage Know what to look for and how to proceed with the aid of over 2 650 state of the art images demonstrating interventional procedures in addition to full color illustrations emphasizing key anatomical structures and landmarks Quickly reference the information you need through a functional organization highlighting indications and contraindications for interventional procedures as well as tables listing the materials and instruments required for each Access the fully searchable contents online only material and all of the images online at Expert Consult

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

Peripheral and Cerebrovascular Intervention Deepak L. Bhatt,2011-11-20 Peripheral and Cerebrovascular Intervention draws upon experts from diverse fields to provide readers with a comprehensive foundation for understanding and performing endovascular procedures from the basic steps to the most current and advanced techniques Individual chapters focus on primary intervention sites including lower extremity renal mesenteric subclavian upper extremity carotid vertebral intracranial and venous interventions Additionally chapters covering critical limb ischemia and abdominal and thoracic aortic aneurysms are included By incorporating valuable clinical information such as indications contraindications complications and discussions of surgical techniques and procedures this book is a valuable resource for the busy practitioner and will be of interest to all interventional and general cardiologists radiologists and neurologists vascular surgeons internists and residents and fellows

Endovascular Intervention for Vascular Disease Matt M. Thompson,Robert A. Morgan,Jon S. Matsumura,Marc Sapoval,Ian M. Loftus,2007-12-22 Historically vascular disease has been treated by a combination of open surgical procedures and medical management Since the first description of a percutaneous procedure to dilate diseased lower limb arteries the treatment of vascular disease has changed Endovascular Intervention for Vascular Disease Principles and Practice offers a diverse a

Rutherford's Vascular Surgery E-Book Jack L. Cronenwett,K. Wayne Johnston,2014-03-12 Published in association with the Society for Vascular Surgery Rutherford s Vascular Surgery presents state of the art updates on all aspects of vascular health care Extensively revised by many new

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Cardiovascular Catheterization and Intervention Debabrata Mukherjee, Eric R. Bates, Marco Roffi, Richard A. Lange, David J. Moliterno, 2017-09-11 Interventional cardiology refers to the catheter based treatment of cardiovascular diseases and is one of the fastest growing fields in medicine This updated text addresses recent advances in structural heart interventions in particular aortic and mitral valve procedures The advent of newer technologies presents both opportunities and challenges for the cardiologist to treat patients optimally Interventional cardiologists are now at the forefront of peripheral and structural heart interventions This new edition focuses on tailoring treatment to individual patients taking into account specific risk factors and comorbidities and appropriate use of devices This second edition also provides useful tools such as treatment algorithms evidence tables charts tables and illustrations to enhance the value of this volume as a practical reference tool The online edition also includes several how to videos

Oxford Textbook of Vascular Surgery Matthew M. Thompson, Robert Fitridge, Jon Boyle, Matt Thompson, Karim Brohi, Robert J. Hinchliffe, Nick Cheshire, A. Ross Naylor, Ian Loftus, Alun H. Davies, 2016-07-28 The Oxford Textbook of Vascular Surgery draws on the expertise of over 130 specialist contributors to encompass the field of vascular surgery Through the use of figures findings of contemporary trials and additional online content this textbook is an excellent study material for surgical trainees entering their final two years of training in addition to serving as an effective reference source for practicing surgeons This volume discusses the epidemiology vascular biology clinical features and management of diseases that affect the vasculature and contains dedicated chapters which address topics such as paediatric surgery damage control surgery and amputations The text follows a logical framework which complements the published Intercollegiate Surgery Curriculum making it particularly useful in preparation for the Intercollegiate Examination The online version of The Oxford Textbook of Vascular Surgery is free for twelve months to individual purchasers of this book and contains the full text of the print edition links to external

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Updates in Peripheral Vascular Intervention, An Issue of Interventional Cardiology Clinics Herbert D Aronow,2020-03-07 This issue of Interventional Cardiology Clinics guest edited by Dr Herbert Aronow will discuss Updates in Peripheral Vascular Intervention This issue is one of four selected each year by the series Editor in Chief Dr Matthew Price Topics discussed in this issue will include Vascular access alternative vascular access and vascular closure hemostasis Wires catheters and sheaths balloons and stents Plaque modification eg atherectomy lithoplasty devices Embolic protection Renal and mesenteric artery intervention Iliac intervention Fem pop intervention Below the knee intervention Acute limb ischemia intervention Catheter directed therapy for pulmonary embolism Intervention for iliofemoral DVT and May Thurner Venous ablation among others

Vascular Interventional Radiology Mark G. Cowling,2012-09-22 In its new edition this book offers a thorough review of current knowledge in the field of endovascular surgery All chapters have been updated to reflect recent progress and new chapters are included on carotid artery stenting and day case intervention

Strategic Approaches in Coronary Intervention Stephen Geoffrey Ellis,David R. Holmes,2006 Updated to include the newest devices and procedures this practical reference is a clinically oriented guide to interventional cardiology Chapters by the foremost experts present step by step approaches to specific clinical problems and offer guidelines for selecting the most appropriate

device and technique The authors recommendations are backed by their extensive experience and by evidence based clinical trials This Third Edition describes the latest stents and stenting procedures including local drug delivery with coated stents and provides state of the art information on local myocyte injection distal protection devices peripheral vascular intervention and new adjunctive therapies The concluding chapter previews future developments in the field **Handbook of Interventional Radiologic Procedures** Krishna Kandarpa,Lindsay Machan,2012-03-28 The Fourth Edition of Handbook of Interventional Radiologic Procedures features extensive updates to keep pace with the rapid growth of interventional radiology Focusing on protocols and equipment this popular practical handbook explains how to perform all current interventional radiologic procedures Highlights of this edition include new information on radiofrequency ablation Each procedure includes indications contraindications preparation technique postprocedure management and prevention and management of complications Simple line drawings demonstrate relevant anatomy and procedures Coverage also includes risk management nursing management and drugs and dosages The outline format helps readers find information quickly and the compact pocket size enables residents and practitioners to carry all the information they need with them

Endovascular Interventions Jose M. Wiley,Cristina Sanina,Peter Faries,Ian Del Conde,George D. Dangas,Prakash Krishnan,2019-01-18 A practical resource covering both elective and emergency procedures for the practicing vascular and endovascular clinician This book provides medical professionals vascular surgeons interventional cardiologists interventional radiologists endovascular neurologists vascular medicine specialists with a reference guide to the most common and accepted approach to endovascular management of peripheral vascular disease It also addresses urgent interventions in the acute setting of the various vascular beds and covers emerging areas such as stroke intervention and endovascular treatment of pulmonary embolism and vascular trauma Edited by a multidisciplinary team Endovascular Interventions offers in depth coverage of the field in seven parts Overview Supra Aortic Intervention in High Risk Patients Innominate Subclavian Carotid Vertebral and Intracranial Interventions Interventions of the Aorta Renal and Mesenteric Interventions Lower Extremity Interventions Venous Disease and Vascular Trauma Each section covers the technical aspects of the procedures as well as the fundamental clinical aspects which are necessary in the evaluation of patients considered for interventions Chapters feature illustrations case studies key learning points equipment lists and sample questions and answers which can be used for Board exam practice Practical review of vascular and endovascular medicine covering both elective and emergency procedures Illustrated templated chapters provide rapid answers to questions and include case studies key learning points and equipment lists Includes sample questions and answers that are handy for Board exam practice Edited by multidisciplinary experts Endovascular Interventions is an excellent review book for all practicing and aspiring vascular and endovascular specialists Peripheral Vascular Interventions Krishna Kandarpa,2008 This comprehensive clinical reference describes the full range of endovascular interventions currently used for peripheral vascular problems The first section

provides essential information on peripheral vascular diseases including etiology clinical and laboratory evaluation and imaging before performing a procedure The second section explains the physics techniques and clinical uses of all vascular imaging modalities The major portion of the book covers specific arterial and venous interventions for each anatomic region These chapters address clinical issues indications patient selection procedural and technical considerations results and post procedural management and discuss available devices and pharmaceuticals More than 1 100 illustrations complement the text

The Evidence for Vascular Surgery Jonathan J. Earnshaw, John A. Murie, 2007 Following on from the huge success of the first edition this new edition has been fully revised and updated and includes additional chapters Each chapter will analyze the available literature concentrating on randomized trials to produce an authoritative statement about the management of common vascular disorders A clear and concise summary of the best available scientific evidence to justify or otherwise procedures and drugs commonly used to manage vascular disorders Essential reading for all those who treat patients with arterial and venous diseases

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

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Moore's Vascular and Endovascular Surgery E-Book Wesley S. Moore, 2018-06-06 Using an easy to read user friendly format and hundreds of review questions that facilitate effective studying Vascular and Endovascular Surgery A Comprehensive Review 9th Edition contains the essential information you need for exam success and daily reference Dr Wesley Moore and a team of international experts cover everything from foundational concepts to the latest developments in the field with each specialist providing a complete summary of a particular area of expertise Extensive updates throughout the text keep you current with all that's new in this rapidly expanding field Presents indications techniques and results of the spectrum of open vascular operations including carotid endarterectomy repair of abdominal aortic aneurysm aorto femoral bypass and infra inguinal bypass as well as management of varicose veins and deep venous occlusive disease Contains hundreds of review questions

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