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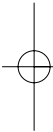
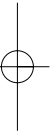
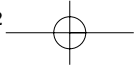
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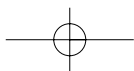
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2.



The Scientific Programme

ESVS Prizes

The prizes, provided by Elsevier Science, will be awarded to the authors and presenters of the "top two" papers, as judged by the Selection Committee, with a first and second prize. The best poster will also be awarded with a prize kindly provided by Elsevier.

If you wish your paper to be considered for a prize by the Selection Committee you must :

- Be under 41 years of age
- Present original work
- Be the principal author and presenter
- Provide the Selection Committee with a preliminary manuscript by 31 August. Failure to do this will result in a paper not being considered for a prize.

Once a paper has been selected for presentation at the ESVS meeting, the work becomes the property of the ESVS. All accepted and reserve abstracts are published in the Abstract Book and electronically on EJVES Extra.

All abstracts and reserves are accepted on the understanding that a manuscript will be submitted for consideration for publication in the European Journal of Vascular and Endovascular Surgery.

Please send all manuscripts electronically to :

www.editorialmanager.com/ejves

Authors must submit their manuscript to the Journal via Editorial Manager (www.editorialmanager.com/ejves) by 31 August.

Failure to submit a manuscript in time will mean that the abstract cannot be presented at the Meeting.

Authors will have an opportunity to state if they do not wish to have their work published in the EJVES, but they must give a valid reason as to why not and the ESVS Selection Committee will have the final say as to whether the paper is accepted for presentation.

All abstracts and manuscripts must be the original work of the author and there must be no duplication of material written by others. This should be confirmed in writing. Failure to comply will result in disqualification of the paper. The ESVS takes no responsibility for the personal views expressed by authors.

Please send all manuscripts electronically to : www.editorialmanager.com/ejves

The Scientific Committee wishes to thank the reviewers who kindly assisted in the selection of the abstracts submitted:

Ian Chetter; Rachel Clough; Philip Coleridge-Smith; Paola de Rango; Jonothan Earnshaw; Gianluca Faggioli; Livio Gabrielli; Chistopher Gibbons; Jonathan Golledge; Jose Gonzales Fajardo; Stephan Haulon; Rob Hinchliffe; Christos Karkos; Mark Koelemay; Philippe Kohl; Peter Lamont; Miltos Lazarides; Dink Legemate; Sandro Lepidi; Christos Liapis; Anne-Karin Lindahl; Bengt Lindblad; Gabriele Maritati; Massimiliano Marrocco-Trischetta; Wolfgang Meichelboeck; Germano Melissano; Ross Milner; Nick Morrison; Kenneth Myers; Ross Naylor; Lars Norgren; Franck Padberg; Gianbatista Parlani; Maximilian Pichlmeier; Don Poldermans; Janet Powell; Giovanni Pratesi; Rob Sayers; Joseph Schneider; Olaf Schouten; Torben Schroeder; Carlo Setacci; Clifford Shearman; Jesper Swedenborg; Omke Teebken; Joseph Tejjink; Thomas Troeng; Paul Van Bemmelen; J Adam van der Vliet; Marina Vega de Ceniga; Eric Verhoeven; Frank Vermassen; Maarit Vernemo; Fabio Verzini; Clark Zeebregts

*applying for ESVS Prize

Scientific Sessions - Presentations

Friday 4 September

Room: Olympia

Session 1 Chairmen: F Moll, J Jørgensen

0900 - 1030

0900 - 0912	The Influence of Different Types of Stentgrafts on Aneurysm Neck Dynamics after Endovascular Aneurysm Repair <i>JA van Herwaarden *</i>	1
0912 - 0924	Computational Fluid Dynamics Pre- and Post Endovascular Stentgraft Placement in Type II-B Aortic Dissections <i>C Karmonik *</i>	2
0924 - 0936	Duplex Ultrasound and Contrast-enhanced Ultrasound vs CT for Detection of Endoleak after EVAR: Systematic Review and Meta-Analysis <i>A Karthikesalingam</i>	3
0936 - 0948	Aortoenteric and Aortobronchial Fistulae Following Thoracic aorta Endovascular Repair: Results from a National Survey <i>A Kahlberg</i>	4
0948- 1000	Predictors of Reintervention after Endovascular Repair of Iliac Artery Aneurysms <i>R Attia *</i>	5
1000 - 1012	Ace Inhibitors (ACE-I) and Angiotensin-II receptor Blockers (ARB) in Abdominal Aortic Aneurysms (AAA): Annual Growth Rate <i>A Awwad</i>	6
1012 - 1024	The Viborg Vascular (VIVA) Randomised Screening Trial: Design, Methods and Preliminary Findings <i>N Grøndal *</i>	7

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Scientific Sessions - Presentations

Friday 4 September

Room: Olympia

Session 2 Chairmen: : N Chakfe, G Menyhei 1100 - 1230

- 8** 1100 - 1112 In Vivo Study on the Expression Pattern of Resistin in Patients with Abdominal Aortic Aneurysm
B Muehling
- 9** 1112 - 1124 Radial Force of Carotid Stents: Uncovered Ground With Potential Clinical Consequences
*MT Voûte**
- 10** 1124 - 1136 Pravastatin Use in Patients with Abdominal Aortic Aneurysm is Associated with Increased Protease Activity
*R Hurks**
- 11** 1136 - 1148 Comparison of Two Different Laser Wavelengths and Catheters in the Treatment of Great Saphenous Vein Varicosities: A Prospective Randomized Controlled Study
S Doganci
- 12** 1148 - 1200 Innovative Treatments in Chronic Venous Insufficiency - Endovenous Laser Therapy of Perforator Veins: a Prospective Short-term Analysis of 58 Cases
RJ Hissink
- 13** 1200 - 1212 Ultrasound Guided Foam Sclerotherapy for Varicose Veins: Factors Associated with Outcomes and Complications
*SC Thomasset**
- 14** 1212 - 1224 The Effects of Isolated Phlebectomy on Reflux and Diameter of the Great Saphenous Vein: A Prospective Study
P Pittaluga

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Scientific Sessions - Presentations

Saturday 5 September

Room: Olympia

Session 3	A Mansilha, D Curuvija	0900 - 1030
0900 - 0912	Arm Vein is Superior to Prosthetic Graft in Infra-inguinal Revascularisation for Critical Limb Ischemia <i>E Arvela</i>	15
0912 - 0924	Influence of Surgical or Endovascular Distal Procedures of the Lower Limbs on Ischaemic Ulcer Healing and Limb Salvage According to an Angiosome Model <i>C Varela*</i>	16
0924 - 0936	Results of Catheter Directed Endovascular Thrombolytic Treatment of Acute Leg Ischemia <i>GA Løkse Nilssen *</i>	17
0936 - 0948	Dysglycemia in Vascular Surgery Patients <i>M Astor</i>	18
0948 - 1000	Growth Factor Levels in Autologous Derived Platelet-rich Plasma and Platelet-poor Plasma; Implication for Tissue Reparation and Wound Healing <i>AA Akingboye*</i>	19
1000 - 1012	18F-FDG PET-CT for Early Detection of Vascular Graft Infection: Midterm Results <i>K Saziye *</i>	20
1012 - 1024	Stenting for Chronic Postthrombotic Cava and Iliofemoral Occlusions. Clinical Outcome and Midterm Patency <i>A Rosales</i>	21

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Scientific Sessions - Presentations

Saturday 5 September

Room: Olympia

Session 4

Chairmen: S Parvin, V Pandey

1100 -1230

- 22** 1100 - 1112 Systematic Preoperative Coronary Angiography Reduces Myocardial Ischemic Events after Carotid Endarterectomy in Patients without History of Coronary Artery Disease. Results of a Randomized Study.
G Illuminati
- 23** 1112 - 1124 Human Carotid Atherosclerotic Plaques Potentiate Platelet Aggregation: Role of Matrix Metalloproteinase-2 (MMP-2)
M Lenti
- 24** 1124 - 1136 Severity of Stroke: Contraindication to Early Carotid Endarterectomy? Analysis of the Ongoing Phase of a Prospective Multicenter Italian study
E Sbarigia
- 25** 1136 - 1148 Cervical Access for Filter-protected Carotid Artery Stenting: A Useful Tool to Reduce Cerebral Embolization
*G Palombo**
- 26** 1148 - 1200 X-Ray in the Identification of Stent Fracture at the Level of the Carotid Arteries
G Coppi

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Scientific Sessions - Presentations

Saturday 5 September

Room: Olympia

Session 5	Chairmen: G Torsello, V Riambau	1700 - 1800
1700 - 1712	Natural History of Thoraco-abdominal Aortic Aneurysm in High Risk Patients <i>P Hansen*</i>	27
1712- 1724	An Analysis of the French Multicentre Experience of Fenestrated Aortic Endografts: Medium-term Outcomes <i>S Amiot*</i>	28
1724 - 1736	The Incidence of Spinal Cord Ischaemia following Thoracic and Thoraco-abdominal Aortic Endovascular Intervention <i>S Drinkwater*</i>	29
1736 - 1748	Open Repair of Descending Thoracic and Thoraco-abdominal Aortic Disease <i>K Krohg-Sørensen</i>	30
1748 - 1800	Endovascular Repair of Thoracoabdominal Aortic Aneurysms <i>S Haulon</i>	31

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Scientific Sessions - Presentations

Sunday 6 September

Room: Olympia

Session 6 J Rauwerda, G Fraedrich 0900 - 1000

- 32** 0900 - 0912 The Effect of Fluvastatin on Perioperative Cardiac Events in Patients Undergoing Vascular Surgery
O Schouten
- 33** 0912 - 0924 Use of AngioJet Rheolytic Thrombectomy for Arterial and Graft Thrombosis: The PEARL Registry
EJ Simoni
- 34** 0924 - 0936 A Clampless and Sutureless Aorto-prosthetic End-to-side Anastomotic Device: An Experimental Study
YS Alimi
- 35** 0936 - 0948 Endovascular Repair of Popliteal Artery Aneurysms Under Duplex Guidance
N Marks
- 36** 0948 - 1000 Pharmacological Risk Reduction in Asymptomatic Peripheral Arterial Disease: Is treatment cost-effective?
B Sigvant

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Nurses & Technicians' Scientific Session

Saturday 5 September

1600 - 1700

Room: Kunst

Chairmen: J Jørgensen, C Bjerke

1600 - 1612	Development and Evaluation of a Standardized Care Plan for Carotid Endarterectomy <i>B Feldt</i>	1
1612 - 1624	Patients' Experience of Going Through Open Surgery for Abdominal Aortic Aneurysm <i>A Letterstål</i>	2
1624 - 1636	Has Risk Factor Management in Vascular Patients Improved? <i>LM Allen</i>	3
1636 - 1648	The Reproducibility of Toe Pressure Measurements <i>N Cloete</i>	4
1648 - 1700	Vacuum Assisted Closure (VAC) - Case reports <i>R A S Myklebust</i>	5

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Scientific Sessions - Posters

Friday 4 September	Poster Session	Exhibition Area
Evaluators: P Cao, JB Ricco		1800 - 1830
1	Interdisciplinary Treatment of Visceral and Renal Artery Aneurysms <i>B Rantner*</i>	
2	One-year Results with a New Treatment Modality for Chronic Dissections <i>E Mattsson</i>	
3	Endarterectomy of the Aneurysm sac in Open Abdominal Aortic Aneurysm Repair Reduces Perigraft Seroma and Improves Graft Incorporation <i>T. Wolff</i>	
4	Multicenter Audio-analysis of the Information Surgeons Communicate to Patients with an Abdominal Aortic Aneurysm <i>AM Knops*</i>	
5	Early Results after Treatment of Abdominal Compartment Syndrome (ACS) with Traction and VAC-PAC <i>A Setemes</i>	
6	Type II Endoleak Embolization with Real-time 3D-Fluoroscopy Needle Guidance <i>L van Bindsbergen*</i>	
7	Syphilitic Aneurysm of Abdominal Aorta in 46 year old man: a case report <i>T Janusauskas</i>	
8	The Role of Ex-vivo Gene Therapy of Vein Grafts with Egr-1 Decoy in the Suppression of Intimal Hyperplasia <i>M Peroulis*</i>	
9	Effect of EVAR with TRF and IRF on Renal Function compared to Open Repair: Long Term Results of a Prospective Comparative Study <i>M Antonello*</i>	
10	Virtual Angioscopy, and 3D Navigation: New Technique in the Analysis of the Aortic Arch after Vascular Surgery <i>N Louis*</i>	

12.

please note change of order.

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Scientific Sessions -Posters

Friday 4 September	Poster Session	Exhibition Area
	4D Imaging of Type B Aortic Dissection using Real Time Self-Respiratory Gated Cardiovascular Magnetic Resonance Imaging <i>RE Clough</i>	11
	Maximum Peak Wall Stress is Associated to Increased Glucose Metabolism in Abdominal Aortic Aneurysm Wall Assessed by FDG-PET-CT <i>C Reeps</i>	12
	Carotid Angioplasty Combined with Intensive Lipid-lowering Therapy Reduces Novel Inflammatory and Calcification Markers and Increases the Contralateral GSM Score in Patients with Carotid Stenosis <i>NPE Kadoglou</i>	13
	Resection of the Carotid Body and the Carotid Sinus Nerve during Eversion Carotid Endarterectomy (eCEA) is not Associated with Postoperative Blood Pressure Instability <i>K.Linni</i>	14
	Safety of Endovascular Treatment of Supra-aortic Trunks Occlusive Lesions: Interest of Using Appropriately Cervical and Femoral Approaches <i>P Desgranges</i>	15
	Sex Difference in Composition of Plaques of Patients Undergoing Carotid Endarterectomy <i>K Rerkasem</i>	16
	Carotid Endarterectomy in Diabetic Patients <i>W. Dorigo*</i>	17
	A Mechanistic Study of Micro-vessel Density and Angiogenic Growth Factor Expression in Symptomatic versus Asymptomatic Carotid Plaques <i>M Chowdhury</i>	18
	Operative Outcomes Using a Structured Branched Thoracic Aortic Graft (STAG) in a 17-year Experience with 615 Thoracoabdominal Aneurysms <i>P De Rango</i>	19
	Endovascular Approach to Arch Aneurysms: Ten Years Experience <i>E Civilini</i>	20

please note change of order.

13.

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Scientific Sessions - Posters

Friday 4 September Poster Session

Exhibition Area

- 21 Spinal Cord Injury is not Negligible after TEVAR for Lower Descending Aorta
H Matsuda
- 22 Surgical Treatment of Acute Mesenteric Ischemia
YG Orel
- 23 Vein Preservation Treatment of Aneurysm Developed in Arterio-venous Fistula: an Exoprosthesis to Reinforce Venous Aneurysmorrhaphy
X Berard
- 24 Endovascular Hybrid Versus Open Repair in Patients with Marfan Syndrome and Thoracoabdominal Aortic Aneurysms
M Dialynas
- 25 Internal Carotid Stenosis Imaging: Doppler Derived Maximal Systolic Acceleration Compared to Peak Systolic Velocity and Magnetic Resonance Angiography Recordings
*MS Bruijn**
- 26 How to Make Results Comparable in TAAA Repair? – The EuroSCORE in Hybrid-Procedures
M Gawenda
- 27 Autogenous Brachial-Brachial Fistula for Vein Access: One Year Clinical Outcome and Comparison with Arteriovenous Grafts
C Lioupis
- 28 Anti-platelet Therapy Exerts Beneficial Effects on Carotid Atherosclerotic Plaque Composition; a Determinant of Peri-operative Outcome and Local Restenosis
*W Peeters**
- 29 Physical and Chemical Evaluation of Implanted Vascular Prostheses with Longitudinal Ruptures: How to Improve in vivo Polyester Stability?
N Chakfe
- 30 CKLF1 is Up Regulated in Human Atherosclerotic Plaques and it has Increasing Effects on the Proliferation and Migration of Human Arterial Smooth Muscle Cells
C Shen

14.

please note change of order.

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Scientific Sessions - Posters

Friday 4 September	Poster Session	Exhibition Area
Imaging Mass Spectrometry Revealed Unique Lipids Distribution in Primary Varicose Vein <i>H Tanaka*</i>		31
The Positive Effect of Immunosuppression on Adaptation of Venous Allografts to Arterialization in Rats <i>I Matia*</i>		32
Supervised Exercise Training Reduces Plasma Levels of the Endothelial Inflammatory Markers E-selectin and ICAM-1 in Patients with Peripheral Arterial Disease <i>T Saetre</i>		33
Modified Ankle Brachial Index Detects Increased Number of Patients at Risk in Finnish Primary Health Care – ATTAC study <i>N Oksala</i>		34
Serum Levels of Ischemia – Modified Albumin in Healthy Volunteers after Exercise – Induced Calf Muscle Ischemia <i>J Falkensammer</i>		35
Bypass to the Ankle and Foot in Patients with Tibial Arteries Disease Unfit for Endovascular Treatment. Long-term Results and Factors Influencing Outcome <i>M Gargiulo</i>		36
Poor Balance and Physical Function among Elderly Claudicants – is Exercise the Answer? <i>K Mockford*</i>		37
Risk Factors of Premature atherosclerosis <i>V Andreev*</i>		38
Comparing the Endothelialisation of Synthetic and Biological Vascular Grafts under Static and Shear Stress <i>D Coakley</i>		39
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please note change of order.

15.

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Scientific Sessions - Posters

Friday 4 September Poster Session

Exhibition Area

- 41 Venous Ulcers: Who will not Heal? Validating a Score that Predicts Healing for C6 Patients
F Bastos Gonçalves
- 42 Endovenous Laser Therapy in the Treatment of Recurrent Varicose Veins – a Safe and Effective Option
A Nair
- 43 Estradiol Levels in Varicose Vein Blood of Patients With and Without Pelvic Vein Incompetence (PVI): Diagnostic Implications
*G Ascitto**
- 44 Usefulness of the Computed Tomography for Deep Venous Thrombosis of Lower Extremities
SJ Park
- 45 The Impact of Different Concentrations of Sodium Tetradecyl Sulphate (STD) and Initial Balloon Denudation on Endothelial Cell Loss and Tunica Media Injury in a Model of Foam Sclerotherapy (FS)
*A Ikponmwosa**
- 46 Long-term Results after Transfemoral Venous Thrombectomy for Iliofemoral Deep Venous Thrombosis
B Geier

16.

please note change of order.

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Scientific Sessions - Posters

Friday 4 September Poster Session

Exhibition Area

The European Society for Vascular Surgery has asked the Japanese Society for Vascular Surgery to send us five trainees to present their work at the Oslo Meeting. This is a reciprocal arrangement and five European trainees participated in the Japanese meeting in May this year.

Open surgical repair after thoracic endovascular aortic repair
*A Tanaka**

J1

The predictive factors of ischemic spinal cord injury after thoracic endovascular aneurysm repair for descending thoracic aortic aneurysm.
*K Koide**

J2

The Long-term Results of Endovascular Treatment for Splenic Artery Aneurysms
*H Kagaya**

J3

Near infrared lays-induced fluorescence of ICG to assess regional microcirculation
*H Terasaki**

J4

Intraoperative sac pressure measurement during endovascular abdominal aneurysm repair and aneurysm volume measurement
*N Hida**

J5

please note change of order.

17.

The Influence of Different Types of Stentgrafts on Aneurysm Neck Dynamics after Endovascular Aneurysm Repair

JA van Herwaarden (1), JW. van Keulen(1), KL Vincken(3), J van Prehn (1,2), M Prokop (2), LW Bartels (3), MA Viergever (3), FL Moll (1)

Depts of Vascular Surgery (1) and Radiology (2), and Image Sciences Institute (3), University Medical Center Utrecht, The Netherlands

Introduction	Dynamic imaging provides insight into aortic shape changes throughout the cardiac cycle. These dynamic aortic shape changes may be important for proximal aortic stentgraft fixation, sealing and durability. The objective of this study is to analyze the influence of different stentgraft types on dynamic morphology changes of the aneurysm neck.
Aim of the study	
Materials/Methods	Pre- and postoperative retrospectively ECG-gated computed tomographic angiography (CTA) scans were obtained of 30 AAA patients, treated with 3 different stentgrafts (10 Talent, 10 Endurant and 10 Excluder). Each dynamic CTA dataset consisted of 8 reconstructed cardiac-phase images. Aortic area and radius changes during the cardiac cycle were determined at 2 levels: (A) 3cm above and (B) 1cm below the renal arteries. Radius changes were measured over 360 axes, from the center of mass of the aortic lumen, and plotted in a polar plot. An ellipse was fitted over the plots to determine the radius changes over the major and minor axis for assessment of the asymmetric aspect and most prominent direction of distension.
Results	Baseline characteristics did not differ significantly between the 3 groups. Preoperatively, the aortic area increased significantly ($p < 0.001$) over the cardiac cycle in all patients at both levels: (A) mean increase 8.3%, range 2.0%-17.3%; (B) mean increase 5.9%, range 1.9%-12.4%. The postoperative aortic area increase did not differ significantly from pre-operative increases: (A) mean increase 9.9%, range 4.4% - 20.0%; (B) mean increase 7.7%, range 3.8% - 12.4%. The difference between radius change over the major and minor axis was significant both pre- and postoperative for all 3 type of stent grafts, indicating asymmetric distention. Suprarenal, the aortic distension showed a tendency to right-anterior, infra-renal to left-anterior. The distention and direction of the aortic expansion were preserved after stent grafting. There were no differences between the 3 types of stent grafts regarding their impact on the aortic distension or direction of this distension.
Conclusions	The aorta expands significantly and asymmetrically throughout the cardiac cycle. After implantation of abdominal aortic stentgrafts, the aortic distention and direction of distention remain preserved. The 3 stentgraft types studied seem to be able to adapt to the asymmetric dynamic aortic shape changes.



Computational Fluid Dynamics Pre- and Post Endovascular Stentgraft Placement in Type II -B Aortic Dissections

C Karmonik, J. Bismuth, HK Younes, MG Davies, AB Lumsden

The Methodist Hospital Neurological Institute and The Methodist Hospital DeBaakey Heart and Vascular Center, Houston Texas, USA

2.

Introduction

Aim of the study

Dynamic imaging is now a reality and offers the clinician important and additional data that will influence patient management. Computational fluid dynamic (CFD) techniques have been progressed to a point where they can be routinely applied for the simulation of blood flow dynamics in the human vasculature. Patient-specific geometries and physiological accurate flow rates are available from clinical images to provide accurate boundary conditions for these simulations. Advances in computer hardware and CFD software have reduced the computing time for these simulations from days to a hours. Such a time frame permits the inclusion of CFD results into pretreatment planning. The aim of this is to describe CFD simulations before and after thoracic aortic stentgraft placement for type II B aortic dissection.

Materials/ Methods

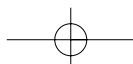
Patient-specific geometries of the true and false lumen of the aorta of a patient presenting with a type II-B aortic dissection were obtained from a dynamic magnetic resonance imaging (dynamic MRI) study on a Siemens Sonata 1.5 T MRI scanner. Physiological flow information in the ascending aorta was measured with 2D phase contrast magnetic resonance imaging. From 3D surface reconstruction of the aorta, computational tetrahedral meshes were created with Gambit (Ansys, Fluent). Transient simulations with the measured volumetric blood flow waveforms as inflow were computed using Fluent (Ansys, Inc.). The wall shear stress magnitude (WSS) and the dynamic pressure (dynP) on the aortic wall were derived from these calculations at systole and diastole.

Results

Aortic flow waveforms were similar before and after intervention, (pre: max flow: 363 ml/sec, min flow -24 ml/sec, length of cardiac interval: 765 msec; post: max flow: 351 ml/sec, min flow - 33 ml/sec, length of cardiac interval: 825 ml, figure 1). Large values for WSS (> 5 Pa) and dynP (> 80 Pa) were found prior to treatment at the entrance tear and at a stenotic wall region in the true lumen (figure 1, filled arrows) in systole. In diastole, a wall region in the false lumen exhibited large WSS and dynP values not present during systole and caused by strong secondary flow patterns. After stent graft placement, WSS and dynP did not exceed 3.3 Pa and 55 Pa in the true lumen, respectively except a immediately prior to a stenotic wall region immediately proximal to the re-entrance tear (figure 1, filled arrow).

continued

SESSION 1





Duplex Ultrasound and Contrast-enhanced Ultrasound vs CT for Detection of Endoleak after EVAR: Systematic Review and Meta-Analysis

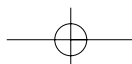
A Karthikesalingam, TA Mirza

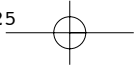
Cambridge University Hospital NHS Foundation Trust, United Kingdom

3.

SESSION 1

Introduction	Contrast enhanced computed tomography (CT) has become 'gold-standard' imaging modality for surveillance following EVAR. However repeated CT causes cumulative contrast related renal injury. Duplex ultrasound (DUS) and contrast enhanced (non-nephrotoxic) duplex scanning (CEUS) are less invasive but considered less accurate than CT. The aim of this study was to determine the diagnostic accuracy of imaging modalities used to detect endoleak. Accordingly, we undertook a systematic review and meta-analysis of the evidence base for DUS and CEUS compared to CT following EVAR.
Aim of the study	
Materials/Methods	Medline, Embase, trial registries, conference proceedings and article reference lists were searched to identify trials comparing DUS or CEUS with CT following EVAR. Contrast-enhanced computed tomography was taken as the 'gold-standard' investigation. DUS and CEUS were compared to CT in separate meta-analyses.
Results	Twenty-one studies in 2567 patients compared USS with CT. The sensitivity of USS at detecting endoleak was 0.69 (95% CI 0.64 to 0.73; I ² =0.82) and pooled specificity 0.93 (95% CI 0.92 to 0.94; I ² =0.90). Seven studies (285 patients) compared CEUS vs CT. The pooled sensitivity was 0.89 (95% CI 0.82 to 0.95; I ² =0.32) and specificity 0.92 (95% CI 0.87 to 0.95) although there was significant heterogeneity (I ² =0.67).
Conclusions	This study confirms that unenhanced DUS has poor sensitivity for endoleak detection; however CEUS is a highly sensitive modality. These results should be interpreted with some caution due to heterogeneity in analysed trials and further research is needed to evaluate the efficacy of CEUS before it can be utilised as the primary imaging modality for EVAR surveillance.





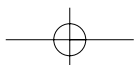
Aortoenteric and Aortobronchial Fistulae Following Thoracic aorta Endovascular Repair: Results from a National Survey

A Kahlberg, R Chiesa, G Melissano, EM Marone, MM Marrocco-Trischitta
Vita-Salute University, Scientific Institute San Raffaele, Milan, Italy

4.

SESSION 1

Introduction Aim of the study	Aortoesophageal (AEF) and aortobronchial (ABF) fistulae represent an uncommon and highly fatal condition, even if opportunely treated. They occur most commonly in association with thoracic traumas, aortic aneurysms and penetrating aortic ulcers, esophageal or bronchogenic malignancies, and as a complication of thoracic surgery, including aortic surgery. The expanding use of thoracic aortic endovascular repair (TEVAR) brought to the increase of new late specific complications, including AEFs and ABFs. However, relatively little is known about these events, because of their rarity, of the relatively recent clinical introduction of endovascular techniques, and of lacking of multicenter reports in the literature.
Materials/ Methods	We conducted a National Survey on voluntary basis among Italian University and Hospital Centers with an Endovascular Program. The questionnaire aimed to determine the rate of AEF/ABF as postoperative complications after TEVAR, clinical features and treatment results.
Results	Seventeen Centers agreed to participate and provided data on their patients. Overall, between 1998 and 2008, 1.138 patients were treated by means of TEVAR. Among these, 19 developed an AEF or an ABF after stent-graft implantation (1.7%). In 16/19 patients (84%) indication to TEVAR was a primary aortic pathology, complicated in 7 (44%) cases. In remaining 3/19 patients, indication to TEVAR was a secondary aortic lesion following previous open or endovascular surgery. In 11/19 cases (58%), TEVAR required an adjunctive or secondary procedure. Mean interval between primary endovascular procedure and establishment of the fistula was 10.9 months. Eleven patients underwent operation, by means of open surgical aortic repair in 6 cases, re-TEVAR in 3 cases, and esophageal or bronchial repair alone in 2 cases. Mortality was 64% (7/11) in patients who underwent operation, and 100% (8/8) in patients who did not.
Conclusions	AEFs and ABFs represent a devastating and probably underestimated complication of TEVAR, and must be always considered by endovascular surgeons. This seems to be particularly significant in case of TEVAR for complicated aortic pathology, and in case of adjunctive or secondary procedures.



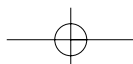


Predictors of Reintervention after Endovascular Repair of Iliac Artery Aneurysms
 R Attia, H Zayed, B Modarai, R Clough, R Bell, S Thomas, T Sabharwal, T Carrell, J Reidy,
 P Taylor
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5.

Introduction	Reintervention following endovascular repair of Iliac Artery Aneurysms (e-IAs) is one of the limitations of this procedure which is a safer alternative to open surgery. The aim of this study is to identify the factors affecting the reintervention rate (RR) after e-IAs.
Aim of the study	
Materials/Methods	Retrospective analysis of prospectively maintained database of all patients who underwent e-IAs during the period from November 1999 to November 2008 was performed. All aneurysms were assessed using a computed tomography angiography (CTA). Follow-up protocol included CTA and outpatient clinic appointment at 3 months then duplex scan and outpatient appointment annually thereafter if appropriate.
Results	<p>Fifty two IAs in 44 patients were treated (42 Men, median age 77 years) with a median diameter of 44 mm (range 22-47 mm). The median follow-up was 25 months (range 3-108 months). Embolisation of Internal Iliac Artery (IIA) was required in 32/52 aneurysms (61.5%), all of them had patent contra-lateral IIA. Six aneurysms were associated with unilateral IIA occlusion; none of them required embolisation or coverage of the other IIA. Eleven patients presented with bilateral IAs which were treated simultaneously. The rate of type I endoleak was significantly higher with PLZ diameter exceeding 30 mm, length < 7 mm or DLZ diameter > 24 mm. (P = <0.0001, <0.0001 and <0.0001 respectively). RR increased significantly with the increase in the diameter or the decrease in the length of Proximal Landing Zone (PLZ) (P values: <0.0001 and <0.0001 respectively), and was not significantly increased following IIA embolisation.</p> <p>Freedom from re-intervention was 100%, 97%, 93%, 86% at 30 days, 12, 24 and 108 months. There was no in-hospital or aneurysm-related mortality.</p>
Conclusions	e- IAs is a safe treatment option. Proper patient selection is essential to reduce RR.

SESSION 1





Ace Inhibitors (ACE-I) and Angiotensin-II receptor Blockers (ARB) in Abdominal Aortic Aneurysms (AAA): Annual Growth Rate

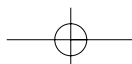
A Awwad, M Baguneid, A Heagerty, CN McCollum

University Hospital of South Manchester NHS Foundation Trust, Manchester, United Kingdom

6.

Introduction	To investigate the role of ACE-I & ARB in the AAA patients
Aim of the study	enrolled at University Hospital Aneurysm Surveillance Program (ASP).
Materials/ Methods	Eligible AAA patients (n=857) had their AAA diameter measured at least annually. 203 were taking ACE-I & ARB, 92 were taking other antihypertensive medications and 443 were not on any anti-hypertensives. AAA diameter was measured by duplex ultrasound (Phillips HDI) of the antero-posterior diameter. A cohort study was designed to compare the median AAA growth rates between the three groups using standard linear equations. Data collection listed patients' medication history (agents/dose/duration).
Results	It was found that AAA patients on any anti-hypertensives (ACE-I/ARB or OTHERS) had a lower median AAA growth compared to those not on anti-hypertensives at 1.1 mm (IQR: 0.3-2.4), 1.2 mm (IQR: 0.2-2.1) and 2.6 mm (IQR: 0.5-4.3) respectively. The three groups were significantly different in their growth rates when statistically compared using Kruskal-Wallis test ($p < 0.001$). Mann-Whitney tests, demonstrated that being on anti-hypertensive is significantly beneficial than not being on any at all. A very significant p-value was found between NONE and ACE-I/ARB groups ($p < 0.001$) and between the NONE and OTHERS groups ($p < 0.001$), but not between ACE-I/ARB and OTHERS ($p = 0.617$).
Conclusions	This cohort study demonstrates a significant effect of anti-hypertensives on AAA growth. We now need a prospective randomized clinical trials to evaluate whether ACE-I & ARB have any greater effects than other anti-hypertensives.

SESSION 1





The Viborg Vascular (VIVA) Randomised Screening Trial: Design, Methods and Preliminary Findings

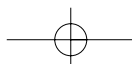
N Grøndal, EW Henneberg, JS Lindholt

Vascular Research Unit, Viborg Hospital, Viborg, Denmark

7.

Introduction Aim of the study	Screening trials for abdominal aortic aneurysm (AAA) in the nineties did not offer systematic cardiovascular prevention. Progression of small AAA and increased risk of cardiovascular death may be inhibited through smoking cessation, low-dose aspirin and lipid-lowering treatment. In addition, >10% of men +60 years have screening detectable subclinical peripheral atherosclerotic disease (PAD) associated with a three times higher risk of partly preventable death.
Materials/ Methods	To evaluate initial experiences with a vascular screening programme for AAA, PAD and indirectly hypertension concerning acceptability, prevalences of positive findings, and preventive interventions.
Results	In March 2009, 11,091 were randomised, 5,401 invited, and 3,743 (69%) attended primary – 374 (10.0%) were diagnosed with PAD, 129 (3.4%) AAA, and 606 (16.2%) had a systemic blood pressure above 160/100 mmHg. A total of nineteen (0.5%) of the screened population comprising 15% of all diagnosed AAA were referred for preoperative evaluation. In total 463 had AAA or PAD (12.4%); 194 were smokers (42%) vs 19% among negative findings (OR=3,1 (p<0.01)), but only 49 (25%) accepted smoking cessation consultation. Low dose aspirin was started in 126 (3.4%) of the screened population, and 29.6% of positive findings. Lipid lowering treatment was started in 137 (3.7%) of the screened population, and 29.6% of the positive findings. In all, preventive treatment was initialized in 200 (5.3%) of the screened population.
Conclusions	By re-invitation of non-responders, final attendance is expected around 75%, which seems acceptable. The prevalence of AAA and PAD in 65–74 aged men is substantial, and 1/3 receives no cardiovascular prevention.

SESSION 1



In Vivo Study on the Expression Pattern of Resistin in Patients with Abdominal Aortic Aneurysm

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Introduction	Obesity is increasingly correlated to cardiovascular disease. It is suspected that adipose tissue leads to systemic inflammation and atherosclerosis by release of various hormones and cytokines (adipokines). The adipokine resistin is considered as one promotor of atherosclerosis, yet its role in patients with abdominal aortic aneurysms (AAA) is largely unexplored.
Aim of the study	
Materials/Methods	After approval of the local ethics committee and informed consent 63 patients with the indication for elective aneurysm repair were included in the study. Preoperatively plasma samples and intraoperative surgical tissue specimen were obtained. Subsequently plasma levels of resistin, interleukin 6 and 10 (IL6 and IL10) and C-reactive protein (CRP) were determined. In tissue specimen immuno-histochemistry (IHC) for resistin and CD68 (marker for monocytes/macrophages) was performed. Plasma levels of inflammatory markers were correlated to AAA size (<5cm/5.1-6cm und >6cm) and statin therapy.
Results	Concerning age, gender, AAA diameter, history of coronary artery disease, hypertension, diabetes and smoking there were no significant differences. 38 patients had been on regular statin therapy for at least 4 weeks prior to surgery (23 patients on simvastatin at a dosage from 10-40mg once daily, 2 patients on fluvastatin 80mg once daily). IHC showed positive stainings for resistin in all sections. Resistin positive areas were seen along inflammatory regions and were co-localized to CD 68 expression. Patients with AAA>6cm had significantly elevated levels of IL6 (10.51ng/ml vs. 4.45ng/ml and 3.67ng/ml median; p=0.009) and CRP (8.4mg/ml vs. 2.3mg/ml and 1.8mg/ml median, p=0.007) as compared to patients with smaller AAA's. Patients on statin medication had significantly lower plasma levels of resistin (7.73ng/ml vs.11.04ng/ml median; p=0.005) and CRP (1.8mg/ml vs. 6.7mg/ml median; p<0.05).
Conclusions	Resistin in patients with AAA is secreted by monocytes/macrophages and reflects the inflammatory nature of AAA formation along with the significant correlation of IL6 and CRP to AAA size. Plasma levels of resistin are not correlated to aneurysm diameter; yet statin therapy results in decrease of resistin and CRP. Future investigations should aim at the inflammatory mechanisms of AAA formation and especially in its potential inhibition by statin medication.

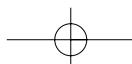


Radial Force of Carotid Stents: Uncovered Ground With Potential Clinical Consequences
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9.

Introduction	Carotid angioplasty and stenting (CAS) is an increasingly performed alternative to carotid endarterectomy. Complications include hypoperfusion of the brain as a result of overstimulation of the baroreceptors, by balloon dilatation or by the radial force of the stent. In this study we tested the radial force of four different carotid stents. Two open cell nitinol stents (Acculink®; and Protégé®), one hybrid nitinol stent (Cristallo Ideale®) and a braided elgiloy stent (Wallstent®).
Aim of the study	
Materials/Methods	Five stents of each type were deployed in three loops of bopet film. These films were attached to aluminium rods with copper strain gauges, forming a half Wheatstone bridge. The radial force of the stent leads to pulling of the rods and voltage differences in the strain gauges, which can be precisely and reliably measured. We performed two tests, one of stent deployment and one simulation of a clinically relevant stenosis.
Results	In stent deployment, the Protégé® produced a peak radial force of 62cN, the Wallstent® 38cN, the Acculink® 35cN and the Cristallo Ideale® 15cN ($p < 0,05$). In the simulated stenosis (figure 1) the Protégé® had the greatest peak radial force of 328cN and the Wallstent® produced the lowest radial force of 84 cN ($p < 0,05$).
Conclusions	Radial forces exerted by carotid stents vary significantly between various stent designs. In both tests the Protégé® stent generates a radial force far greater than all the other stents. Clinical results of CAS may be very dependent of the specific stent used and may therefore not be generalized for all carotid stent systems. In our opinion, besides flexibility and free cell area, an objective comparison of radial force is necessary for a well-considered choice of stent type in the individual patient.

SESSION 2



Pravastatin Use in Patients with Abdominal Aortic Aneurysm is Associated with Increased Protease Activity

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Introduction Aim of the study	Open and endovascular repair of Abdominal Aortic Aneurysms (AAA) is associated with high morbidity and mortality. Hence, pharmaceutical stabilization of the arterial wall and reducing the expansion rate is a field of great interest. Small clinical trials indicate AAA growth retardation by statins, but mechanistical data are scarce. Furthermore, differences among statins have not yet been investigated. Therefore, we sought to determine the pleiotropic effects of various statins on AAA wall composition and protease activity.
Materials/ Methods	Patients undergoing open AAA repair were included (n=189). Clinical parameters were recorded, including statin use (46 used Simvastatin, 44 Atorvastatin, 19 Pravastatin, 10 Rosuvastatin and 80 without statin use). During surgery, a specimen of the ventral AAA-wall was collected and stored. Elastin and collagen content and inflammatory infiltrates were assessed by histology. Moreover, cytokine levels, MMP 2 and 9 activity, as well as total MMP 8, 9, Cathepsin A, B and S were measured.
Results	Statin treated AAA contained less macrophages (p=0.037), less iL2 (p=0.039), less iL4 (p=0.040) and less Cathepsin A (p=0.047) compared to AAA without statin treatment. Remarkably, MMP2 (p=0.029) and MMP9 (p=0.025) activities were higher in the walls of statin users. Subgroup analyses showed that this can be attributed to pravastatin users, which showed significantly increased MMP2 (p=0.036) and MMP9 (p=0.006) activity and higher total MMP9 (p=0.032), whereas other statins did not significantly alter protease activity. Histological analysis showed that pravastatin treated AAA had a less degraded media with more elastin (p=0.026), more collagen (p=0.014) and more medial smooth muscle cells (p=0.022), while no differences in AAA diameter were found between groups. Simvastatin use was associated with decreased amounts of intimal and medial collagen (p=0.002), less lymphocytes (p=0.033) and lower amounts of Cathepsin A compared to patients not using a statin. Atorvastatin was associated with less macrophages (p=0.015) and lower iL4 (p=0.031).
Conclusions	Simvastatin and atorvastatin decrease accumulation of inflammatory cells in AAA walls. Statin use does not decrease MMP2 and MMP9 activity, Therefore, the observed reduced AAA expansion upon statin treatment cannot be attributed to changes in protease activity. The increased proteolysis in pravastatin treated AAA supports the need for a better differentiation between different statins.

Comparison of Two Different Laser Wavelengths and Catheters in the Treatment of Great Saphenous Vein Varicosities: A Prospective Randomized Controlled Study

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- Introduction**
Aim of the study
- Aim of this study is to compare the efficacy, early postoperative morbidity, patient comfort and effects on venous clinical severity score (VCSS) of two different laser wavelengths (1470 nm and 980 nm diode lasers) and catheters (standard and radial catheters) in the treatment of great saphenous vein varicosities.
- Materials/**
Methods
- Between October 2008 and February 2009 60 patients (106 legs) were randomized into two different groups. In group I patients were treated with standard laser catheter (ElvesPlus, BiolitecAG, Germany) and 980 nm diode laser (BiolitecAG, Germany). In group II patients treated with radial laser catheter (Elves radial catheter, BolitecAG, Germany) and 1470 nm diode laser (BiolitecAG, Germany). All endovenous ablation procedures were performed with continuous mode. Venous clinical severity scores were recorded for all patients in both groups preoperatively. Local pain, ecchymosis, indurations and paresthesia over treated parts of the legs, distance from the skin, vein diameter, treated vein length, volume of tumescent anesthesia, delivered energy were recorded. Follow-up visits were planned as 2nd day, 7th day, 1st month, 2nd, 3rd and 6th months.
- Results**
- Mean age in group I is 35.2 ± 9.23 years and 36.3 ± 7.55 years in group II. Sixteen of the patient were male in group I and 19 patients were male in group II. Mean follow-up time was 3.7 ± 2.4 months. While mean saphenous vein diameter at the saphenofemoral junction was 12.1 ± 4.3 mm and in group I, 8.2 ± 2.4 mm at the popliteal level, it was 11.8 ± 4.1 mm and 7.9 ± 2.6 mm respectively in group II. In both groups 70% of the patients were in CEAP classification C3/C4 class. There was no or minimal local pain in group II. There was minimum ecchymosis or induration at the treated area in group II. When VCSS (Preoperative ($8.6 \pm 3.2/8.4 \pm 2.9$), postoperative 2nd day ($5.3 \pm 2.5/4.6 \pm 2.4$), 7th day ($5.0 \pm 2.2/4.2 \pm 2.0$), 1st month ($4.2 \pm 2.1/3.7 \pm 1.9$), 2nd month ($3.5 \pm 1.9/3.1 \pm 1.6$), 3rd month ($3.2 \pm 1.7/2.9 \pm 1.5$) and 6th month ($2.2 \pm 0.9/2.0 \pm 0.7$)) is compared there was statistically significant difference in postoperative 2nd day, 7th day and 1st month control in the favor of group II. After the first month there was no difference at the recorded parameters. Minimal paresthesia was seen in 9 patients in group I and 1 patient in group II.
- Conclusions**
- Early and midterm results of our study is in favor of 1470 nm wavelength and radial laser catheter. In the early postoperative period patient comfort and satisfaction was superior in the same group.

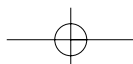


Innovative Treatments in Chronic Venous Insufficiency – Endovenous Laser Therapy of Perforator Veins: a Prospective Short-term Analysis of 58 Cases
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Dept of Surgery, Scheper Ziekenhuis, Emmen, The Netherlands

12.

Introduction	Endovenous ablation is becoming a well-established treatment option in the treatment for chronic venous insufficiency. In CEAP 5 and 6 disease, a complete treatment of perforator vein reflux in addition to superficial truncal reflux, has been shown to lead to more rapid ulcer healing and lower recurrence rates. Duplex ultrasound guidance used in endovenous techniques overcomes the problem of poor accuracy reported in surgical treatment of perforator veins. Percutaneous approach avoids surgical defects in the delicate skin of the affected area. This study was set up to examine the efficacy of endovenous laser therapy of perforator veins.
Aim of the study	
Materials/Methods	Between March 2008 and February 2009 endovenous laser therapy of the perforator veins was performed in an outpatient clinic setting. Guided by duplex ultrasonography the perforator vein was percutaneously cannulated and perivascular local anesthesia (Tumescent) was delivered. A 810 nm diode laser was used, delivering 14 W/sec, using an ultra-thin laser fiber tip through the needle. Three months post-treatment all patients received a duplex ultrasound of the treated vessel.
Results	58 perforator veins were treated in 28 patients (mean age 65 years, range 30-81). CEAP classification was 4, 5 and 6 (67,17 and 16% respectively). Mean energy delivered per vein was 187 joules (range 87-325 J). 78% occlusion rate was achieved at 3 months. 80% of ulcers healed in the CEAP 6 patients. There were no major complications.
Conclusions	The above results are promising in the endeavor towards offering complete treatment of venous reflux in chronic venous insufficiency by laser ablation under local anesthesia in the outpatient clinic setting. Further analysis of the clinical results by this approach needs to be performed and compared with present treatment strategies.

SESSION 2





Ultrasound Guided Foam Sclerotherapy for Varicose Veins: Factors Associated with Outcomes and Complications

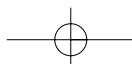
SC Thomasset, Z Butt, L Gemmill, S Liptrot, BJ Fairbrother, KR Makhdoomi

Dept of Vascular Surgery, King's Mill Hospital, Nottinghamshire, United Kingdom

13.

Introduction	In recent years ultrasound guided foam sclerotherapy (UGFS) has become an increasingly popular treatment for varicose veins. Although many published series detail the results of UGFS, little is known about the factors which are associated with outcomes and complications. The aim of this study was to identify factors associated with outcomes and complications following UGFS.
Aim of the study	
Materials/ Methods	A review of a prospectively collected database of UGFS which commenced in July 2007. A successful outcome was defined as complete occlusion of the target vein on duplex analysis at follow-up. Eight factors were assessed to determine whether they were associated with outcomes and complications. These factors were age (≥ 65 years), gender, compliance with post-procedure compression stockings, previous varicose vein surgery, single or multiple sites of injection, concentration of sclerosant ($< 3\%$), volume of sclerosant (≥ 10 mls) and pre-procedure CEAP (≥ 4). Statistical analysis was conducted using the Chi-square test. P values of less than 0.05 were deemed significant.
Results	Between July 2007 and March 2009, a total of 101 patients (48 men, 53 women) have attended follow-up visits and had a post-procedure duplex scan. The median timing of follow-up was 3 (range 1.5-14) months with duplex scans revealing complete occlusion of the target vein in 79% of patients. Complications of UGFS were skin staining (n=33), thrombophlebitis (n=22), DVT (n=1) and allergic reaction (n=1). The only factor associated with a successful outcome was compliance with post-procedure compression stockings (p=0.000). Female gender was the only factor associated with post-UGFS complications (p=0.000), particularly skin staining (p=0.001).
Conclusions	Our data suggest that compliance with compression stockings and gender are important factors associated with a successful outcome and reported complications following UGFS, respectively. This study highlights the need for discussions with patients to emphasise the potential complications of UGFS along with the importance of compliance with compression stockings following the procedure.

SESSION 2





The Effects of Isolated Phlebectomy on Reflux and Diameter of the Great Saphenous Vein: A Prospective Study

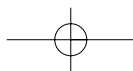
P Pittaluga

Riviera Veine Institut, Nice, France

14.

Introduction	A new pathophysiological concept in primary varicose disease suggests ascending or multifocal progression from the suprafascial venous network to the saphenous vein (SV). Ablation of the suprafascial varicose reservoir could therefore improve or eliminate reflux in the SV. The objective of this study is to evaluate the effect of isolated phlebectomy on the duration and velocity of reflux, as well as on the diameter of the SV.
Aim of the study	
Materials/Methods	We included patients presenting reflux in the great saphenous vein (GSV) and who were treated with isolated phlebectomy in a prospective study. We measured reflux duration (RD) and peak reflux velocity (PRV) and the diameter of the GSV using duplex ultrasound pre-operatively and then 1 month after surgery.
Results	We included 55 legs in 54 patients (24 women and 30 men) aged from 37 to 83 (mean age 62.6). We reviewed all of the legs 1 month after the isolated phlebectomy treatment.
Conclusions	We noted a change to reflux in the GSV after isolated phlebectomy with a significant reduction in RD and PRV. Isolated phlebectomy also led to a significant reduction in GSV diameter. These data suggest that the SV can be improved from a haemodynamic and anatomical point of view by using treatment focusing on the suprafascial venous network.

SESSION 2



Arm Vein is Superior to Prosthetic Graft in Infra-inguinal Revascularisation for Critical Limb Ischemia

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Introduction Aim of the study	Greater saphenous vein (GSV) is the conduit of choice for infra-inguinal revascularizations. Unfortunately adequate length of usable GSV is not always available. Despite of inferior patency rates compared to GSV, arm vein grafts are generally considered superior to prosthetic grafts. The purpose of this study was to compare the outcome of infrainguinal arm vein bypass and prosthetic bypass and to find out whether prosthetic bypasses to infrapopliteal vessels are justified.
Materials/ Methods	We reviewed retrospectively 204 consecutive infrainguinal bypasses performed with arm vein graft (n=102) or prosthetic graft (n=102) during January 2000 and December 2005 in our institution. The groups were compared for risk factors, indication for surgery and outflow distribution. Survival, leg salvage and patency rates were calculated with Kaplan –Meyer method.
Results	Median surveillance time was 34 months. The arm vein group and prosthetic group were similar according to age, gender and usual risk factors. Outflow vessel distribution was more distal in arm vein group ($p<0.001$). Outcomes between groups did not reach statistically significant difference when the whole study population was analysed. In subgroup analyses of infra-popliteal revascularizations survival at 3 years in arm vein versus prosthetic grafts was 54.9% ($SE\pm 5.5\%$) vs. 40.4% ($SE\pm 8.4\%$) ($p=0.034$), respectively. Leg salvage at 3 years was 76.0% ($SE\pm 5.0\%$) vs. 61.3% ($SE\pm 9.3\%$) ($p=0.015$), respectively. Primary, assisted primary and secondary patency rates at 3 years were 44.2% ($SE\pm 9.1\%$) vs. 56.4% ($SE\pm 11.5\%$) ($p=0.962$), 56.8% ($SE\pm 7.3\%$) vs. 41.9% ($SE\pm 9.8\%$) ($p=0.026$) and 59.5% ($SE\pm 7.0$) vs. 41.9% ($SE\pm 9.8\%$) ($p=0.021$), respectively.
Conclusions	Arm vein conduits are superior to prosthetic grafts in terms of mid-term leg salvage and assisted primary and secondary patency rates, especially in infrapopliteal bypasses. However, in the absence of autologous veins, prosthetic bypasses can be used as a last effort for limb salvage with acceptable results.

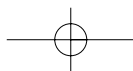


Influence of Surgical or Endovascular Distal Procedures of the Lower Limbs on Ischaemic Ulcer Healing and Limb Salvage According to an Angiosome Model
 C Varela, , F Acín, J De Haro, A Florez, S Bleda, JR March
 Hospital Universitario de Getafe, Madrid, Spain

16.

Introduction Aim of the study	The foot can be divided into 6 anatomical regions according to the feeding tibial vessel (Angiosomes). Our aim is to analyse ischaemic ulcer healing and limb salvage of surgical or endovascular distal revascularization using an Angiosome anatomical classification of ulcers.
Materials/ Methods	Retrospective analysis of 76 ischaemic ulcers revascularized by surgical (41) and endovascular (35) distal procedures between January 2005 and December 2008. All interventions were primary procedures with single outflow vessel that remained patent during follow-up. Preoperative angiographies were reviewed and wounds were classified as "Direct Revascularization" (DR) if treated vessel fed the injured Angiosome (45) and "Indirect Revascularization" (IR) if it fed an unrelated Angiosome (31). IR was subdivided into: IR "through collaterals" (18) and IR "without collaterals" (13) depending on the presence of collateral vessels to the injured Angiosome (Plantar arch and peroneal branches). Log-Rank test was used to compare healing rates and limb salvage according to the type of revascularization and therapeutic group. Stepwise logistic regression model was used to determine predictive factors for healing and mayor amputation.
Results	Survival rates were comparable between groups. Ulcer healing rate at 12 months was higher in DR than in IR (92%-vs-73% p=0,008) but similar to IR "through collaterals" (92%-vs-85%). Limb salvage at 24 months was higher in DR than in IR (93%-vs-72% p=0,02) but similar to IR "through collaterals" (93%-vs-88%). There were no statistical differences in ulcer healing rates (84%-vs-87%) and limb salvage (79%-vs-90%) between surgical and endovascular procedures. IR "without collaterals" was the only predictive factor of delayed healing (OR:9,8 95%CI[2,5-38,3]) and major amputation (OR 34,9 95%CI[3,8-315,4]).
Conclusions	Our experience suggests that restoring blood flow to the ischaemic ulcer, either directly or through collateral vessels, is more important than the feeding tibial artery in terms of healing and limb salvage. In this context, surgical and endovascular distal procedures provide similar outcomes.

SESSION 3



Results of Catheter Directed Endovascular Thrombolytic Treatment of Acute Leg Ischemia
 GA Løkse Nilssen (1), D Svendsen (1), K Singh (2), K Nordhus (2), D Sørliie (3)
 Medical students at University of Tromsø (1), Dept of Radiology, University Hospital of
 North Norway (2), Dept of Cardiothoracic and Vascular Surgery, University Hospital of
 North Norway, Institute of Clinical Medicine, University of Tromsø (3)

- Introduction**
Aim of the study Until the 90's the treatment of acute arterial ischemia of the lower leg primarily consisted of surgery, i.e. embolectomy, reconstruction and/or amputation. Gradually fibrinolysis took over, and after the introduction of human plasminogen activator (rt-PA) the algorithm of treatment most places has been catheter directed infusion of rt-PA, immediately following the primary angiography. Most of the patients also had balloon angioplasty, and many were stented and/or underwent vascular surgery as well. We have looked at early- and late results of this treatment from a representative period where all legs with acute ischemia underwent this approach.
- Materials/**
Methods Two hundred and twelve patients treated with Actilyse®; at the University Hospital of North Norway because of acute arterial ischemia of the leg during the period 01.01.2000-30.06.2006 were analyzed retrospectively. The information needed for the study was collected from the patients' journals. The radiologic results were defined as successful (contrast in all three leg arteries), adequate (some increase of contrast in the leg arteries) or failed (no contrast), as assessed by the radiologist.
- Results** The radiologic outcome was judged to be successful in 101 (48 %), adequate in 80 (38 %) and failed in 31 (14 %). At one-year follow-up 158 (75 %) were alive without amputation, 14 (7 %) were alive with amputation, 20 (9 %) were dead without amputation and 20 (9 %) were dead with amputation. All together 34 (16 %) were amputated and 40 (19 %) were dead after one year. After an average observation period of 3.25 years 111 (52 %) were alive without amputation, 16 (8 %) were alive with amputation, 60 (28 %) were dead without amputation and 25 (12 %) were dead with amputation. A total of 41 (19 %) were amputated and 85 (40 %) were dead. Fifty complications were registered; 30 (14 %) compartment syndromes, 8 (4 %) strokes, 12 (6 %) myocardial infarctions. No larger bleedings were recorded.
- Conclusions** The results are at least as good as historic controls and similar to those reported in international series (1). Especially it seems like the long term results are somewhat better. The complication rate and the morbidity are less than in surgery. The algorithm requires available interventional competence at any time, together with close monitoring of the patient. The approach is in line with recent international consensus (2). References: (1) Berridge DC, Kessel D, Robertson I. Surgery versus thrombolysis for initial management of acute limb ischaemia (Review). Cochrane Database of Systematic Reviews 2002, Issue 1. (2) Norgren et al. Inter-Society Consensus for the Management of Peripheral Arterial Disease (TASC II). Journal of Vascular Surgery 2007, Volume 45, Number 1, Supplement S.

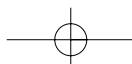


Dysglycemia in Vascular Surgery Patients
M Astor
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18.

Introduction	Recent studies using oral glucose tolerance test (OGTT) in patients with acute coronary syndromes have demonstrated up to 60% pathologic glucose metabolism. Only 1/3 of the patients had previously known diabetes. The aim of this study was to investigate whether vascular surgery patients have a similarly high prevalence of unknown diabetes mellitus and dysglycemia.
Aim of the study	
Materials/ Methods	Between October 2006 and September 2007 397 patients with no previously known diabetes, admitted to the vascular surgical unit, were invited to participate in the study. Of these 121 declined. During the same time period another 68 patients with already acknowledged diabetes were admitted. On a total of 276 patients an oral glucose tolerance test (OGTT) was performed. The results, based on fasting glucose (FG)(mmol/l) and 2-hour plasma glucose, were catalogued into four groups: 1/ impaired glucose tolerance – IGT (FG<7.0, 2h ≥ 7.8 and < 11.1; 2/ diabetes (FG ≥ 7.0 or 2h ≥ 11.1); 3/ isolated impaired fasting glucose – IFG (FG between 6.0 and 7.0 and 2h ≤ 7.8); 4/ normal glucose metabolism (FG ≤ 6.0 and 2h < 7.8).
Results	The OGTT results showed that 66 (24%) of the 276 patients had IGT, 23 (8%) had isolated-IFG and 33 (12%) had diabetes of which 16 had normal fasting glucose values. Including the patients with previously known diabetes the prevalence of diabetes was 29 % and that of any glucose dysmetabolism 55%.
Conclusions	Total prevalence of dysglycemia in vascular surgery patients corresponds well to that of acute coronary syndromes. The prevalence of unknown pathological glucose metabolism was 44% in our OGTT material. Only half of the patients with diabetes would have been diagnosed with fasting glucose. OGTT may be considered as a routine investigation in vascular surgery patients. The clinical implication of unknown dysglycemia in these patients remains to be investigated.

SESSION 3



Growth Factor Levels in Autologous Derived Platelet-rich Plasma and Platelet-poor Plasma; Implication for Tissue Reparation and Wound Healing

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Introduction	The growth factors released from activated platelets are thought to modulate vascular reactivity, angiogenesis and the inflammatory process. The identified growth factors (GFs) in the wound healing cascade are Platelet derived growth factor (PDGF), Transforming growth factor (TGF-beta), Fibroblast growth factor (FGF), vascular endothelia growth factor (VEGF) and many others. Our aim was to quantitatively evaluate the level of released growth factors present in platelet- rich plasma.
Aim of the study	
Materials/ Methods	Blood samples were collected from 14 healthy donors and 6 diabetic patients. Platelet counts from diabetic patients' whole blood and PRP were analyzed. Platelet -rich plasma (PRP) and Platelet -poor plasma (PPP) were prepared from the donor and the patients' whole blood by using platelet collecting and concentrating system (Angle, Sorin). PDGF-AA, FGF-2, TGF-beta-1, IGF-1, EGF, VEGF and P-selectin were measured from both PRP and PPP releasate using the solid phase immunoassay luminex system.
Results	A 6-fold increase was found in the PRP platelet count (2009.3 +/- 746.0 x10 ⁹ /l) compared with diabetic patients (333 +/- 89.4 x 10 ⁹ /l). The GF expression in diabetics did not correlate with the platelet count nor with PRP on the regression analysis (r (p) - >0.2 ≤0.9). A similar pattern of GF expression was observed between the donor and the patients. When the expression of GF were compared between PRP and PPP from the donor and diabetic patients, the expression were statistically significant with P values of < 0.001 from PDGF-AA, EGF, VEGF and TGF-β. However, FGF-2 and IGF showed similar trends with P> 0.05. The platelet surface receptor P-selectin (114 +/- 18ng /ml) was also up-regulated (p - <0.002).
Conclusions	A number of potentially therapeutic GFs were detected from PRP in significant levels. The application of PRP is believed to deliver GFs to wounds and mimics normal physiological wound healing and tissue reparation process.



18F-FDG PET-CT for Early Detection of Vascular Graft Infection: Midterm Results

K Saziye (1), S. Albrecht (2), O.Ratib (2), N.Murith, A.Kalangos (1), B.H.Walpoth (1)

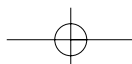
Service of Cardiovascular Surgery (1), Departement of Nuclear Medecin (2),

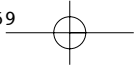
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20.

Introduction Aim of the study	To evaluate the potential role of PET-CT for detection of vascular graft infection by combining metabolic [18F-FDG] with morphological (CT) information in the diagnostic workup of vascular graft infections.
Materials/ Methods	17 Patients with suspected vascular graft infection underwent thoracic-abdominal-pelvic Positron Emission Tomography (PET)-Computer Tomography(CT) on the Siemens Biograph Sensation 16 (BS16) permitting the acquisition of co-registered 18F-FDG [Fluoro-2-deoxy-D-glucose] PET - CT.
Results	Midterm results show suspicion of graft infection in 14/17 patients detected by PET-CT with increased 18F-FDG [Fluoro-2-deoxy-D-glucose] uptake around the grafts. Other vascular localisations were not observed. All patients with positive PET-CT result were re-operated and the infection was finally confirmed by microbiological test in 12/14 Patients. In our study the 18F-FDG PET-CT presented a sensitivity of 100%, specificity of 71.4%, and positive predictive value of 85% and negative predictive value of 100% for the detection of vascular graft infection.
Conclusions	18F-FDG-PET/CT is in our series of 17 patients a highly sensitive and specific method which allows precise localisation and characterisation of the infectious focus on vascular grafts. This novel method might contribute to the early detection of aortic prosthetic graft infection and thus reduce vital complications and help to select patient's suitability for surgical revision. In addition, it might be of particular interest to localize the infection in patients who potentially have multiple vascular and extra-vascular sites of infection, before developing clinical symptoms of infection or sepsis. However, studies on a larger patient collective are necessary to further characterize sensitivity and specificity.

SESSION 3





Stenting for Chronic Postthrombotic Cava and Iliofemoral Occlusions. Clinical Outcome and Midterm Patency

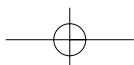
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21.

Introduction	Venous claudication develops in about half of patients suffering an iliac-femoral DVT. The aim of this study is to determine the clinical outcome and the mid-term patency after recanalisation and stenting of chronic occluded cava and iliofemoral venous segments.
Aim of the study	
Materials/Methods	Between 2000 and 2009, 2400 patients with chronic venous insufficiency (CVI) were evaluated and 32 showed to have chronic venous occlusions after DVT. The median age was 41 years (15-63) and 19 were females. The time elapsed after the last DVT episode varied with a median of 108 months (9-420). Investigations included colour duplex ultrasound (CDU), ascending venography (AV), air plethysmography (AP), venous pressure gradient (VPG) and CT venography or trans-femoral/popliteal venography. Seventeen (53 %) had a thrombophilia. The major symptoms were venous claudication, oedema, pain and ulcer. All patients were treated endovascularly with recanalisation and stenting. In three cases complementary open surgery was performed under the same procedure. Self-expanding stents were deployed in the iliofemoral segment in 21 cases, in the iliac segment alone in nine and in one case in the cava-iliofemoral segment. Twenty one procedures required stenting across the inguinal ligament to secure adequate inflow.
Results	Successful primary recanalisation was accomplished in 30/32. The median follow-up was 33 months (1-96) with clinical examination, CDU and AP. Two year primary patency was 13/21 62%, primary assisted patency 15/21 71.4 % and secondary patency 18/21 86 %. Venous claudication and oedema resolved in those successfully recanalized. Three of seven patients presenting with a recurrent ulcer, needed reconstructive deep venous surgery to accomplish ulcer healing. In case of occlusion catheter directed thrombolysis and restenting was attempted.
Conclusions	Endovascular recanalisation and stenting to treat venous claudication, oedema and recurrent venous ulcer caused by postthrombotic chronic venous occlusions has both good mid-term patency and positive clinical outcome.

SESSION 3



Systematic Preoperative Coronary Angiography Reduces Myocardial Ischemic Events after Carotid Endarterectomy in Patients without History of Coronary Artery Disease. Results of a Randomized Study.

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Introduction	To evaluate the effect of systematic coronary angiography (CA)
Aim of the study	followed by coronary artery angioplasty (PTCA), when indicated, on the incidence of myocardial ischemic events occurring after carotid endarterectomy (CEA), in patients without a known history of coronary artery disease (CAD).
Materials/ Methods	From January 2005 to December 2008, 426 patients, candidates for CEA, without a history of CAD, were randomised into two groups. Group A (n = 216) included all the patients undergoing CA eventually followed by PTCA, when needed, before CEA. Group B included all the patients undergoing a standard preoperative cardiac workup (EKG and ultrasound), without coronary angiography. Patients with a known history of CAD, with a previous myocardial revascularization, or with electrical signs of myocardial ischemia were excluded from the study. In group A, 66 patients presenting with significant coronary artery lesions at angiography received PTCA before CEA. They were subsequently operated on under aspirin (100 mg/day) and clopidogrel (75 mg/day) cover. CEA was performed within a mean delay of 4 days after PTCA (range: 1 – 8 days). Two patients requiring surgical myocardial revascularization underwent simultaneous coronary artery bypass grafting and CEA. Risk factors, indications for CEA, and surgical techniques were comparable in both groups (p> 0.05). The endpoints of the study included the incidence of postoperative myocardial ischemic events and complications of coronary angiography.
Results	Postoperative mortality was 0% in Group A, and 0.9% in group B (p>0.05). One postoperative stroke (0.5%) occurred in group A, and two (0.9%) in Group B (p>0.05). No postoperative myocardial events were observed in Group A, whereas 14 ischemic events were observed in group B (p<0.01), including one fatal myocardial infarction. No complication related to coronary angiography was observed in this study. In addition, no postoperative cervical hematoma occurred in patients operated on under aspirin and Clopidogrel cover.
Conclusions	Systematic preoperative coronary angiography, eventually followed by PTCA, significantly reduces the incidence of postoperative myocardial events after CEA.

Human Carotid Atherosclerotic Plaques Potentiate Platelet Aggregation: Role of Matrix Metalloproteinase-2 (MMP-2)

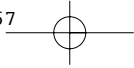
M Lenti, (1) M Pompili (2), P De Rango (1), E Falcinelli (2), G Giordano, T Corazzi (2), M Leone (2), P Cao (1), P Gresele (2)

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- Introduction**
Aim of the study
- Matrix metalloproteinases (MMPs), a family of enzymes able to degrade and to remodel extracellular matrix in several physiologic and pathologic conditions, play a crucial role in atherosclerotic plaque formation and rupture. MMP-2 has been recently found to potentiate platelet activation in response to several stimuli. Sudden release of some MMP-2 from a ruptured plaque in carotid artery might contribute to platelet thrombus formation, transforming structurally vulnerable plaques into functionally unstable, pathologic substrate for acute ischemic stroke. Aim of our study was to assess the role of MMP-2 present in carotid atherosclerotic plaques in the regulation of platelet activation.
- Materials/**
Methods
- Atherosclerotic plaque fragments were obtained from 57 patients undergoing carotid endarterectomy (CEA) for high-grade carotid artery stenosis; the levels of total MMP-2 in plaques were measured by zymography; levels of active MMP-2 and of its specific inhibitor TIMP-2 were measured by ELISA. Plaque extracts were incubated with gel-filtered platelets from healthy volunteers (2 min), added with subthreshold concentration of the thrombin-receptor activating peptide TRAP-6 and the following aggregation reaction was analyzed (5 min).
- Results**
- Twenty-eight of the plaque extracts (49%) amplified the TRAP-6 induced platelet aggregation (average 2.7 ± 0.17 fold increase; $p < 0.05$). Preincubation with two specific MMP-2 inhibitors, inhibitor II and TIMP-2, significantly reduced the proaggregatory effect of plaque extracts on TRAP-6 ($-14.4 \pm 2.4\%$, $p < 0.05$ and $-17 \pm 2.8\%$, respectively, $p < 0.05$). The MMP-2/TIMP-2 ratio was significantly higher in plaques potentiating platelet aggregation than in non-potentiating plaques (1.23 ± 0.26 vs 0.28 ± 0.08 , respectively, $p < 0.05$). The MMP-2/TIMP-2 ratio in plaques from symptomatic patients ($n=28$) was significantly higher compared to those from asymptomatic patients ($n=29$) (5.85 ± 2.3 vs 1.06 ± 0.2 , $p < 0.05$).
- Conclusions**
- Our data show that atherosclerotic plaque can exert a prothrombotic effect by potentiating platelet aggregation due to their high content of active MMP-2. Further and larger studies are needed to show whether an increase of MMP-2 activity in carotid plaques may be predictive of acute ischemic stroke.

**Severity of Stroke: Contraindication to Early Carotid Endarterectomy?
Analysis of the Ongoing Phase of a Prospective Multicenter Italian Study**
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Università di Roma "Sapienza", U.O.Chirurgia Vascolare B (1), Dipartimento di Scienze
Neurologiche (2), Malattie del Cuore e Crossi Vasi "Attilio Reale" (3), Università degli Studi
di Siena, Chirurgia Vascolare e Endovascolare (4), Università degli Studi di Firenze Chirurgia
Vascolare e Endovascolare (5), Italy

Introduction Aim of the study	To assess impact of severity of stroke on outcome after early carotid endarterectomy.
Materials/ Methods	<p>Patients with NIHSS>22 or acute brain infarct >1/3 MCA territory did not enter recruitment. All underwent surgery after neurological evaluation, CT Scan, Echo-Color and Transcranial Doppler.</p> <p>Eighty-six (48%) out of 179 patients with neurological deficit ≥ 4 NIHSS, selected from the data base of the study, were grouped according to the severity of presenting stroke: Group A: NIHSS 4 to 7 (n.55; NIHSS 4.95 ± 1.03); Group B: NIHSS ≥ 8 (n.31; NIHSS 10.32 ± 1.94).</p> <p>The groups were compared for clinical variables by Mann Whitney and Fisher's exact probability test; Mantel-Haenszel was also computed stratifying for neurological presentation as showed by CT Scan. In each group paired comparisons of NIHSS values after surgery VS baseline were analysed by Wilcoxon test. Bonferroni's correction was applied in case of multiple comparisons. A p value >0.05 was considered statistically significant.</p> <p>Improvement/worsening was defined a variation of ≥ 4 NIHSS score.</p>
Results	<p>Mortality rate was 1.16% (1/86). No patient worsened after surgery. NIHSS after surgery improved significantly in both Groups: (Group A: 4.95 ± 1.03 VS 1.31 ± 1.70, $p < 0.001$; Group B: 10.32 ± 1.94 VS 4.03 ± 3.67, $p < 0.001$), but a greater improvement occurred in Group B (-6.29 ± 3.47) VS Group A (-3.64 ± 1.83) ($p < 0.0001$).</p> <p>In Group B, despite an higher rate of acute infarct on CT Scan (23/31 VS 27/55), there were more improving patients (24/31 VS 15/55; $p < 0.001$).</p> <p>Mantel-Haenszel odds ratio showed that improvement was independent from acute infarct on CT Scan (test of homogeneity of the cross product ratios across the two-by-two tables: $\chi^2 = 0.81$, $df = 1$ $p = 0.3695$). Indeed the probability of improving after surgery in Group B was higher than in Group A (Mantel-Haenszel adjusted OR=10.06, 95%CI 3.06-33.09).</p>
Conclusions	Severity of stroke is not a contraindication to early carotid endarterectomy; moreover an acute limited (<1/3 MCA territory) cerebral infarct on CT does not influence neurological outcome.



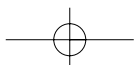
Cervical Access for Filter-protected Carotid Artery Stenting: A Useful Tool to Reduce Cerebral Embolization

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25.

Introduction	Aortic arch instrumentation during transfemoral filter-protected carotid artery stenting (CAS) is held responsible of a non-negligible part of the total procedural embolic load. Filter-protected transcervical CAS has been suggested to reduce this embolic load without increasing local complications. We report clinical outcome and intraoperative embolization rates measured by diffusion-weighted magnetic resonance imaging (DW-MRI) after transcervical and transfemoral CAS.
Aim of the study	
Materials/Methods	From March 2007 to December 2008, we performed 117 filter-protected CAS procedures in our university vascular surgery unit. In 38 patients with risky femoral access or unfavourable aortic arch anatomy, access to the CCA was achieved through a small cervical incision. In other 79 procedures we used a classic percutaneous femoral access. No carotid clamping or blood manual aspiration was used during any step of the transcervical procedure. Preoperative and postoperative DW-MRI scans were obtained after 101 procedures (86%), 32 transcervical and 69 transfemoral.
Results	None of the trans-cervical procedures led to carotid dissections or access site complications. The death-stroke rate was 0% after transcervical CAS and 3.8% after trans-femoral CAS (three strokes and no deaths) ($P < .01$). DW-MRI disclosed new ischemic lesions in 4 patients (4/32, 12.5%) after trans-cervical CAS and in 21 patients after transfemoral CAS (21/69, 30.4%) ($P < .05$). All ischemic lesions depicted after trans-cervical procedures were ipsilateral to the treated carotid artery.
Conclusions	Transcervical filter-protected carotid stenting, compared to classic percutaneous procedures, seems able to significantly reduce clinical events and DW-MRI ischemic damage and may be useful in selected patients.

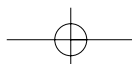




X-Ray in the Identification of Stent Fracture at the Level of the Carotid Arteries
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26.

Introduction	The cervical zone is subject to many varying mechanical forces of flexion, extension, rotation and torsion, which raise doubts regarding stent durability in carotid stenting . This study aims to validate the incidence of stent fracture in a single centre.
Aim of the study	
Materials/ Methods	Between January 2004 and April 2009, 477 patients were treated with carotid artery stenting (CAS). CAS indications for include asymptomatic stenosis $\geq 75\%$ and symptomatic stenosis $\geq 60\%$, with favourable anatomy; independent of surgical risk. Young patients (≤ 60 years old) or unfavourable anatomy were treated with surgery. All procedures were performed in a radiological suite by vascular surgeons. Follow-up schedule includes echo-colour duplex at 1, 3 and 12 months and a cervical X-Ray (anterior-posterior and latero-lateral) at 12 months, assessed by 2 radiologists and 1 vascular surgeon.
Results	All 477 patients were treated with CAS (74.4 mean age) . They were treated with commercially available stent grafts. No patients were lost to follow-up. A total of 480 nitinol stents were implanted; 3 patients (0.6%) received 2 stents. Treated lesions included 85 (17.8 %) soft, 376 (78.8%) mixed and 16 (3.4%) calcified plaques ; 433 lesions (90.8 %) were primitive and 44 (9.2 %) were either secondary restenosis or post radiation. Eleven stent fractures (2.3 %) were identified (3 closed cell stents). All fractured stents were pervious. One case of severe restenosis was, requiring surgical correction with a carotido-carotid bypass. The non hemodynamic restenoses are under observation.
Conclusions	Stent fracture in our experience does not influence stent perviety or the incidence of restenosis, compared with intact stents. X-ray examinations at 12 months should be included in follow-up schedules.

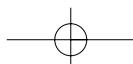




Natural History of Thoraco-abdominal Aortic Aneurysm in High Risk Patients
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27.

Introduction	To determine the risk of rupture in patients with large thoracoabdominal aortic aneurysms (TAAA) who have been assessed but deemed unsuitable for open surgical repair.
Aim of the study	
Materials/Methods	Two hundred and one patients were assessed under a national TAAA service over a seven year period (2002-2008), of whom 89 (44%) were deemed unsuitable for open surgical repair. All patients were entered into a prospective database. The General Practitioner was contacted at six-monthly intervals for follow-up information and cause of death was established from death certificate data.
Results	The median (interquartile range, IQR) age of the patients was 75 (70-80) years and there were 39 men (44%). Median (IQR) aneurysm size was 6 (5.6-7.0) cm. The median (IQR) follow-up time was 28 (18-62) months. Patients were considered unsuitable for surgery on the basis of cardiovascular morbidity in 17 (19%) patients, respiratory disease in 9 (10%) patients, renal disease in 4 patients (4%) and multiple co-morbidities in 44 (49%) patients. There were 49 deaths during the follow-up period at a median (IQR) of 11 (5-26) months after assessment. The cause of death was ruptured TAAA in 23 (47%) of cases. Of the remainder, nine (18%) died of a respiratory cause (five COPD, four lung cancer) and nine (18%) of a cardiovascular event (six myocardial infarction, two stroke, one mesenteric ischaemia). Comparing patients with aneurysms ≤ 6 cm (33 patients) with those with aneurysms > 6 cm (56 patients) there was no difference in aneurysm-related death (6/33 v 17/56, $p=0.32$) or all-cause mortality (16/33 v 33/56, $p=0.38$).
Conclusions	This study suggests that aneurysm-related mortality amongst patients unsuitable for open TAAA surgery is considerable. Novel endovascular techniques may permit elective intervention in selected patients unsuitable for open repair but, due to considerable co-morbidity, it is likely that some patients would gain no benefit from intervention.



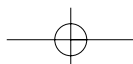


An Analysis of the French Multicentre Experience of Fenestrated Aortic Endografts: Medium-term Outcomes

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28.

Introduction	To evaluate the medium-term outcomes following aortic aneurysm repair utilising fenestrated endografts performed in 17 French academic centres.
Aim of the study	
Materials/Methods	A retrospective analysis of prospectively collected data. This study included all patients with para renal aneurysms treated with fenestrated endografts in France between May 2004 and January 2009. Patients were judged to be at high-risk for open surgical repair. Fenestrated endografts were designed using CT reconstructions performed on 3D workstations. All patients were evaluated with CT, duplex ultrasound, and plain film radiograph at discharge, 6, 12, 18 and 24 months, and annually thereafter.
Results	134 patients (129 males) were treated over the study period. Median age and aneurysm size were 73 years (range 48 to 91 years) and 59 mm (range 45 to 91mm) respectively. A total of 403 visceral vessels were perfused through a fabric fenestration, including 265 renal arteries. One early conversion to open surgery was required. Completion angiography and discharge CT scan showed that 398/403 (99%) and 389/394 (99%) target vessels were patent respectively. The 30-day mortality rate was 2% (3/134). Pre-discharge imaging identified 16 (12%) endoleaks: 3 type I, 12 type II and 1 type III. After the procedure, a transient or permanent dialysis was required in 4 (3%) and 2 (1%) patients respectively. The median duration of follow-up was 15 months (range 2 to 53 months). No aneurysms ruptured or required open conversion during the follow-up period. Twelve of 131 patients (9%) died during follow-up (actuarial survival at 12 and 24 months: 93 and 86% respectively). Median time from procedure to death was 15 months. None of these deaths were aneurysm related. Aneurysm sac size decreased by more than 5mm in 52%, 65.6%, and 75% of patients at 1, 2 and 3 years respectively. Four (3%) patients had sac enlargement within the first year, associated with a persistent endoleak. During follow-up, 4 renal artery occlusions were depicted. Secondary procedures were performed in 17 patients (13%) during follow-up, 6 to correct endoleaks and 5 to correct threatened visceral vessels.
Conclusions	The use of endovascular prostheses with graft material incorporating the visceral arteries is safe and effective in preventing rupture in the medium-term. A predictable high mortality rate was depicted during follow-up in this high risk cohort. Meticulous follow-up to assess sac behaviour and visceral ostia is critical in order to ensure optimal results.



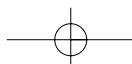


The Incidence of Spinal Cord Ischaemia following Thoracic and Thoraco-abdominal Aortic Endovascular Intervention

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29.

Introduction Aim of the study	To determine the incidence of spinal cord ischaemia (SCI) following thoracic and thoracoabdominal aortic intervention and identify pre-disposing risk factors. We report our experience.
Materials/ Methods	Details of patient history, co-morbidities, procedure and outcome were recorded in a prospectively collected database for all thoracic aortic interventions between 2004-9. All elective and emergency cases were included, as were all indications (aneurysm, acute aortic syndrome). Preoperative CT scans were assessed.
Results	232 patients underwent thoracic aortic stent grafting. 79 were thoracic aortic stent grafts alone, with an additional 14 branched or fenestrated thoracic grafts. The remainder required adjuvant surgical debranching and revascularization procedures, of which 69 were arch hybrids and 70 were visceral hybrids. The global incidence of SCI for all procedures and indications was 20/232 (8.6%). This includes emergency indications (ruptured TAAA and acute complex dissections). Recovery of function was seen in 7/20 (35%). There were no significant differences between age (70.1 v 66.3), the lowest recorded intraoperative blood pressure (92.5 v 94.9mmHg), use of a spinal drain (14/17 v 110/165), previous aortic intervention (8/19 v 72/190), and incidence of SCI. However, the procedures after which patients developed SCI took longer (463.5 minutes v 307.2; p=0.001), lost more blood (4.58 v 2.78L; p=0.02), and utilised more thoracic stents (4 v 2; p=0.001).
Conclusions	SCI following thoracic and thoracoabdominal aortic endovascular intervention is associated with the length of the segment stented and the complexity of the intervention undertaken. The degree of risk should be carefully considered in both selection and consenting of patients.

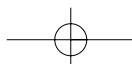




Open Repair of Descending Thoracic and Thoraco-abdominal Aortic Disease
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30.

Introduction	Endovascular repair of descending thoracic and thoracoabdominal
Aim of the study	aortic disease might potentially decrease the risk of death and spinal cord ischemia (SCI). We have used endovascular repair in the descending aorta since 2000, but before implementing new methods for treatment of the visceral aortic segment, we want to review our result with open repair.
Materials/ Methods	During the period Jan 1997 – Dec 2008, 441 left thoracotomies or thoracolaparotomies were performed for aortic disease. Data were collected prospectively and supplied with patient records. Cardiopulmonary bypass was used in 48.1% of patients. Binary logistic regression (SPSS) was used for data analysis.
Results	Median age was 68 years (range 17–83), and 296 (67.2%) were male. There were 114 thoracotomies, and the numbers of Crawford types I, II, III, and IV were 27, 36, 91, and 173. Ruptured aneurysms constituted 14.7%. Overall 30 day mortality was 9.8% for intact aneurysms and 33.8% for ruptures ($p=0.000$). Mortality for intact aneurysms was 15.1% during 1997–2001 and 7.4% during 2002–2008 ($p=0.02$). This improvement paralleled an increase in mean annual volume from 28 to 43. One year mortality was 21.1% (15.9% for intact aneurysms). SCI occurred in 30 cases (6.8%). Both mortality ($p=0.01$) and SCI ($p=0.003$) were significantly related to Crawford types I and II. In multivariate analysis perioperative mortality was correlated to age, postoperative reoperation and stroke, while treatment of coronary disease during the last 6 months preoperatively was protective. SCI was associated with need for prolonged ventilator support.
Conclusions	Our results are comparable to other recent series, and have improved during the period. Superior results with endovascular and hybrid techniques are so far not documented. We believe that open and endovascular repair will be complementary methods, and that it will be necessary to train and maintain competence for both.



Endovascular Repair of Thoracoabdominal Aortic Aneurysms

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CHRU de Lille, France

Introduction	To evaluate the medium-term outcomes following thoracoabdominal aortic aneurysm (TAAA) repair utilising fenestrated and branched endografts.
Aim of the study	
Materials/Methods	A prospective analysis of all patients undergoing endovascular repair of a TAAA in a single academic centre. All patients were deemed unfit for open surgical repair. Endografts were designed using CT data reconstructed on 3D workstations. Post-operatively all patients were evaluated with CT, duplex ultrasound, and plain film radiography at hospital discharge, at 6, 12, 18 and 24 months, and annually thereafter.
Results	Thirty three consecutive patients (30 males) were treated over 33 months (August 2006 to April 2009). Median age and aneurysm size were 71 years (range, 50 to 87) and 60mm (range, 50 to 100) respectively. The TAAA was classified as Crawford type 1 (n=1), type 2 (n=8), type 3 (n=11) or type 4 (n=13). Previous abdominal aortic surgery had been performed in 39% of these patients. The ASA score was evaluated Egtg; III in 76% of the group. We targeted 117 visceral vessels for perfusion via a fenestration or branch. Eighty-nine (98%) of the targeted vessels were successfully catheterised and perfused. We were unable to catheterize a right renal artery in 2 patients: this was corrected using a bypass in one patient, but in the other we elected to proceed without perfusing this vessel. Completion angiography showed patency in 115 of the 117 target vessels (including the ileo-renal bypass). In addition to the abandoned right renal artery, there was one instance of celiac trunk occlusion. The 30-day and in-hospital mortality rates were 6% (2/33) and 9% (3/33) respectively. Early mortality was caused by stress cardiomyopathy, respiratory failure and multiorgan failure. Paraplegia was diagnosed in 3/32 (9%) patients. It proved permanent in one (3%). Transient dialysis was required in 2/33 (6%) patients. The median follow-up period was 9 months (range, 1 to 33). There were 2 late deaths, neither related to aneurysm (myocardial infarct and stroke), occurring 9 and 29 months after the procedure respectively. Endoleaks were identified in 6/33 (18%) patients: type 2 in 5 patients and a type 3 endoleak 1. The later patient had the only secondary intervention in this cohort.
Conclusions	This preliminary study, which includes our learning curve, confirms the feasibility and safety of the endovascular repair of TAAA in high risk patients. Meticulous follow-up to assess sac behaviour and visceral perfusion is critical in order to ensure optimal results.

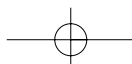


The Effect of Fluvastatin on Perioperative Cardiac Events in Patients Undergoing Vascular Surgery

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32.

Introduction Aim of the study	Coronary plaque instability due to the stress of surgery is an important cause of adverse cardiac events after vascular surgery. We hypothesized that lipid-lowering therapy with anti-inflammatory effects would stabilize coronary plaques, prevent rupture and improve postoperative outcome.
Materials/ Methods	In this double-blind, placebo-controlled trial, statin naïve patients were randomly assigned to receive either 80 mg fluvastatin extended release once daily or placebo on top of beta-blockers, starting 37 days prior to surgery. Interleukin-6 and C-reactive protein were measured at randomization and prior to surgery. The primary endpoint was the occurrence of myocardial ischemia, defined as transient ECG abnormalities and troponin T release within 30 days after surgery. The secondary endpoint was the composite of cardiac death and myocardial infarction.
Results	Two hundred fifty patients were assigned to fluvastatin and 247 to placebo, a median of 37 days prior to surgery. Total cholesterol, low-density lipoprotein cholesterol, interleukin-6 and C-reactive protein levels decreased significantly in the fluvastatin group and remained unchanged in the placebo group. Myocardial ischemia occurred in 27 (10.8%) patients in the fluvastatin group and in 47 (19.0%) in the placebo group (hazard ratio 0.55; 95% confidence interval [CI] 0.34 to 0.88; $p=0.013$). Cardiac death or myocardial infarction occurred in 12 (4.8%) in the fluvastatin group and 25 (10.1%) in the placebo group (hazard ratio 0.47; 95% CI 0.24 to 0.94; $p=0.03$). Fluvastatin therapy was not associated with a significant increase in the rate of adverse events.
Conclusions	In patients undergoing vascular surgery fluvastatin therapy is associated with an improved postoperative cardiac outcome.



**Use of AngioJet Rheolytic Thrombectomy for Arterial and Graft Thrombosis:
The PEARL Registry**
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Introduction	Previous medical literature has discussed the use of the AngioJet
Aim of the study	Rheolytic thrombectomy (RT) for various peripheral thrombotic conditions. The ongoing PEARL Registry (Peripheral Use of AngioJet Rheolytic Thrombectomy with Mid-Length Catheters) seeks to document observational data of the treatment strategies for peripheral use including limb ischemia (LI).
Materials/ Methods	As of April 2009, 163 patients (age 66.4 +/- 14.4, 43% female, 57% male) underwent treatment for LI that included the use of a mid-length AngioJet catheter. Onset of symptoms: 14 days (72.3%) and >14 days (27.7%). The vessels treated were distributed as follows: aorta/iliac (38/289), femoral/popliteal (151/289), tibial/peroneal (51/289) and grafts/bypasses (49/289 in all regions). The RT techniques included thrombectomy alone (132/163, 81%), rapid lysis (23/163, 14%) and power pulse spray (77/163, 47%). RT was combined with angioplasty (112/163, 69%), stenting (70/163, 43%), directed lytic (55/163, 34%), arterectomy (7/163, 4%), embolic protections (8/163, 5%) and other thrombectomy (2/163, 1%). Baseline and final angiograms were compared for the thrombus resolution per treated vessel or graft. A 3 month follow up documented the overall patient status. Clinical events were recorded through the 3 month follow up.
Results	Of the LI patients, final angiogram showed that there was a significant ($p<0.0001$) decrease of the thrombus burden (259/289, 90%, $p<0.0001$) in all treated vessels. Per region: aorta/iliac (31/38, 71%, $p<0.0001$), femoral/popliteal (141/151, 94%, $p<0.0001$) and tibial/peroneal (41/51, 80%, $p<0.0001$). The grafts/bypasses according to type: unknown (21/23, 92%, $p=0.0018$), synthetic (22/22, 100%, $p=0.0012$) and native (3/4, 75%, size too small). Based on onset of symptoms: 14 days (189/209, 91%, $p<0.0001$) and >14 days (70/80, 88%, $p<0.0001$). At follow up, 71% of patients reported improved status and 7 patients (41/163) experienced a resolved AngioJet related (possibly/probably) event.
Conclusions	Rheolytic Thrombectomy with adjuvant treatments is effective for LI patients for both native arteries and bypass grafts.

A Clampless and Sutureless Aorto-prosthetic End-to-side Anastomotic Device: An Experimental Study

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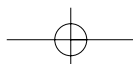
Introduction	To assess the feasibility and efficacy of a new clampless and sutureless device for aorto-prosthetic anastomosis.
Aim of the study	
Materials/ Methods	<p>The Clampless[®] device is made with:</p> <ul style="list-style-type: none"> • a 7-mm dedicated connector, balloon expendable mesh, covered with a PTFE vascular prosthesis; this part of the implant remains inside the pig abdominal aorta (mean diameter: 7 mm), • a 5mm straight polytetrafluoroethylene (PTFE) vascular graft linked to the side of the connector, • a specific 7-mm balloon, included in the device, to allow a simultaneous inflation of the upstream and downstream parts of the connector, • a 20 French ancillary introduction catheter. <p>Experimental in vivo study: 8 pigs (all females; mean weight: 29 kg) underwent a conventional transperitoneal aortic approach, with implantation of an aorto-prosthetic end-to side anastomosis using the Clampless[®] device, and deployment of the 5-mm PTFE graft. A conventional end-to-end anastomosis was then performed between the graft and the left iliac artery, after proximal ligation.</p>
Results	<p>The first pig died during the procedure due to graft misplacement. The seven other procedures were successful with a mean operative and anastomosis time of respectively 101 min (range: 81 - 115 min) and 3.35 min (range: 2.25- 4.50 min); the mean blood loss was 152 ml (range: 30-200 ml). Another pig, with a patent graft, died at day 4 as a result of a severe unrelated pneumopathy. The angiogram performed during the procedure and before sacrifice, at 2 (n=2), 4 (n=2) and 6 weeks (n=2), showed no graft stenosis or thrombosis. The microscopic examination showed a covering tissue over the intraluminal stent evolving over time, without visible endothelial proliferation, nor inflammation.</p>
Conclusions	<p>An aorto-prosthetic anastomosis can be performed safely and efficiently with our new clampless and sutureless device. In the future, the Clampless[®] implantation must be compatible with conventional laparotomy, mini laparotomy and complete laparoscopic access.</p>



Endovascular Repair of Popliteal Artery Aneurysms Under Duplex Guidance
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 Maimonides Medical Center, New York, USA

35.

Introduction	
Aim of the study	The recent advance in the management of popliteal artery aneurysm (PAA) included placement of stented grafts. The precision of proximal and distal graft placement under fluoroscopic guidance becomes challenging in presence of mural PAA thrombus. Our experience with ultrasound guidance for infrainguinal interventions encouraged us to apply it for stented grafts placement.
Materials/ Methods	Eleven patients (10 males and 1 female) underwent duplex-guided placement of Viabahn stented grafts for PAA repair over the last 36 months. Mean patients age was 79 ± 6 years (range from 66 to 89 years). Concomitant risk factors included hypertension in 7 patients (63%), coronary artery disease in 6 (55%), chronic renal failure in 5 (45%), smoking in 5 (45%) and diabetes in 3 (27%) patients, respectively. Mean PAA diameter was 18 ± 7 mm (range 12 to 32 mm). Two patients had no direct run-off to the foot; 3 patients had 1, 3 -2 and 3-3 patent disease-free infrapopliteal arteries, respectively. Preoperative mean popliteal artery volume flow (PAVF) was 61 ± 32 ml/min.
Results	Ten grafts were placed transcatheterously (via 8-11Fr sheaths in the ipsilateral common femoral artery) under local anesthesia and remaining graft via open repair of ipsilateral CFA aneurysm under regional nerve block. Distal graft edge was precisely parked in PA 1 cm beyond the aneurysm end below-the-knee in 3 patients, behind-the-knee in 5 patients and above-the-knee in the remaining 3 patients. Post procedure mean PAVF were 137 ± 41 ml/min (range 80-210 ml/min). Two patients developed graft thrombosis in 2 and 5 months after procedure, respectively. Both were patients with no infra-popliteal run-off and post-procedure PAVF < 100 ml/min.
Conclusions	Endovascular repair of popliteal artery aneurysms with Viabahn stented grafts can be performed under duplex guidance alone. This treatment option can be particularly beneficial in patients with renal failure. Poor run-off and low PAVF (< 100 ml/min) correlates with early graft thrombosis.





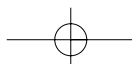
Pharmacological Risk Reduction in Asymptomatic Peripheral Arterial Disease: Is Treatment Cost-effective?

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36.

Introduction	Peripheral arterial disease (PAD) is associated with a three to seven times increased risk for early death in cardiovascular (CV) disease. The majority of PAD subjects are asymptomatic with a prevalence of 11% among elderly. Life-long drug prevention aiming to minimise disease progression and CV events in these subjects is probably beneficial, but expensive. Accordingly, the purpose of this analysis was to evaluate the cost-effectiveness of pharmacological risk reduction in subclinical PAD.
Aim of the study	
Materials/Methods	Long-term costs and quality-adjusted life years (QALYs) of common clinical practice were estimated by employing decision-analytic modelling. Drugs evaluated were: ACE-inhibitors, statins, aspirin and clopidogrel. Combination treatments were not modelled. Rates of cardiovascular events without treatment were derived from epidemiological studies and reduction rates in events caused by treatment were retrieved from controlled clinical trials. Costs and health-related quality of life estimates were obtained from published sources.
Results	All four drugs reduced CV events. Using ACE inhibition resulted in a HR of 0.67 (95%CI 0.55-0.79), statins in 0.74 (0.70-0.79), and clopidogrel in 0.72 (0.43-1.00). Aspirin had a HR of 0.87 and the 95%CI passed one (0.72-1.03). ACE-inhibitors were associated with the largest reduction in CV events to a lower mean cost and higher gain in QALYs than the other drugs. The cost per QALY gained for ACE-inhibitors compared with usual clinical practice was far below conventional threshold values for cost-effectiveness.
Conclusions	While all evaluated drugs reduced CV events, ACE-inhibition was most cost-effective. These results suggest that we should review our prescription patterns in asymptomatic PAD and perhaps be more liberal in identifying asymptomatic PAD patients and in particular offering them ACE-inhibition.





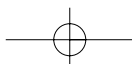
Development and Evaluation of a Standardized Care Plan for Carotid Endarterectomy

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1.

Introduction	In March 2008 a standardized care plan (SCP) for carotid endarterectomy was introduced at the vascular centre, Malmo university hospital, in Sweden. A SCP is an evidence-based standardized care plan that describes nursing care to be provided for a specific group of patients. The idea is to ensure that all patients receive the same high-quality care. The aim is to describe and evaluate the development and implementation of a standardized care plan for carotid endarterectomy.
Aim of the study	
Materials/ Methods	A review of 84 medical records was performed during 2008 to evaluate compliance to the SCP. Thirty nurses answered a questionnaire regarding usefulness, documentation, quality, tool, and implementation of the SCP one year after introduction.
Results	<p>The result showed that the SCP was utilized in 95 % of the carotid endarterectomy patients. However, lack of signatures and dates was observed in 37 cases. It was also obvious that unnecessary twofold documentation occurred in both the SCP as well as in the data based journal system.</p> <p>The result from the questionnaire showed that a majority of the nurses was positive in using the SCP. They also answered that the SCP is useable, makes documentation easier, assures quality of care, is a useful tool and that the implementation of the SCP was experienced as uncomplicated.</p>
Conclusions	During the fall of 2009 the SCP will be introduced in the data based journal system. Some of the problems like missing signatures and dates will then naturally be eliminated. Hopefully problems with twofold documentation will also disappear. The fact that nurses felt more secure when using the SCP, preoperative preparations and post-operative inspections are unlikely to be forgotten causing achievement of high-quality care.



Patients' Experience of Going Through Open Surgery for Abdominal Aortic Aneurysm A Letterstål

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2.

Introduction	Open surgical treatment has a great impact on patients' health related quality of life, (HRQL) both before and after treatment. The recovery process is long, and it can take up to 6 months before returning to the same level of HRQL as seen before surgery. The transition from being independent with no symptom of the disease to being dependant on nursing care can be difficult and needs to be considered when planning for interventions. To facilitate this process and provide high quality nursing care, patients' needs have to be better understood.
Aim of the study	
Materials/ Methods	Narrative interviews with 10 patients were performed three months postoperative, covering the three stages of treatment, i.e. before surgery, after surgery in the hospital and after surgery being at home. Interviews were transcribed and analysed with latent content analysis.
Results	Being diagnosed with AAA meant becoming aware of having a deadly disease. The experience of not fully understanding the risks with surgery or the consequences on daily life made the informants unprepared for complications and limitations during the recovery process. Along with a growing insight of the magnitude of surgery, this created strong emotions. The informants made a transition from becoming aware of the deadly risk with AAA, to gradually understanding the physical and mental impact of the surgical procedure during the rehabilitation process. The transition was difficult, many questions and concerns about the future emerged, and the patient's needed more dialogue and opportunities to understand their own care than given by the health care staff. This was interpreted in themes and sub-themes describing the three stages.
Conclusions	Patients feeling unprepared for the physical and psychological impact following diagnose and treatment for AAA needs to be considered in order to facilitate the recovery process. The need for dialogue has to be recognized by the health care staff in order to facilitate patient participation as well as transition process. Patients' need for information as well as opportunities to reflect on bodily and emotional reactions to surgery has to be recognized, both by nurses and physicians.



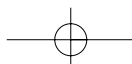
Has Risk Factor Management in Vascular Patients Improved?

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3.

Introduction	Evidence shows optimisation of modifiable risk factors in patients with vascular disease reduces their cardiovascular events and morbidity.
Aim of the study	Change in the United Kingdom General Practitioner's (GP) contract encourages GP's to implement this optimisation within primary care, and should therefore be evident in patients with vascular disease attending a secondary care vascular rehabilitation clinic.
Materials/ Methods	A prospective study was performed on data collected from vascular patients on their initial attendance at our rehabilitation clinic. The data was divided into two year groups of referral to the clinic, 2002 to 2005 and 2006 to 2008 inclusive, and smoking, anti-platelet, cholesterol and hypertension status were compared between the two time periods using Fisher's exact test.
Results	<p>556 new patients were seen in the clinic, with a mean of 79 patients each year.</p> <p>Smoking - Significant increase in current smokers from 131/333 (40%) to 116/223 (52%) $p = 0.004$.</p> <p>Anti-platelet - No change in anti-platelet use between 47/333 (14%) and 28/223 (13%) on no treatment, and between 225/333 (68%) and 153/223 (69%) on Aspirin alone.</p> <p>Cholesterol - Significant increase in treatment with lipid-regulating medication from 262/333 (79%) to 195/223 (87%) $p = 0.009$, however no change in 'treatment to target' between 229/333 (69%) and 140/223 (63%).</p> <p>Hypertension - No change in 'treatment to target' between 207/333 (62%) and 139/223 (62%), and no change in undiagnosed hypertension between 24/333 (7%) and 15/223 (7%).</p>
Conclusions	Despite evidence-based guidelines for risk factor optimisation our vascular rehabilitation clinic continues to observe patients with sub-optimal management, with 13% not optimised on anti-platelet therapy, 1/3 with cholesterol not treated to target, 38% not optimised on anti-hypertensive medication and further more an increase in current smokers. More work is required to improve the risk factor management of vascular patients.



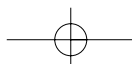


The Reproducibility of Toe Pressure Measurements

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4.

Introduction Aim of the study	With the increasing incidence of tibial vessel calcification, due to the escalation in metabolic syndrome and a longer life expectancy, toe pressure measurements have become more important in defining peripheral vascular disease. The aim of this study was to assess the reproducibility of toe pressure measurements in a single vascular laboratory.
Materials/ Methods	Repeated ankle/brachial indices and toe pressures were measured on two separate groups of thirty subjects. The measurements were repeated blindly by three vascular technologists in a single session for each subject in one group to assess inter-observer reproducibility. In the second group measurements were repeated at 48 hourly intervals for each subject by a single investigator in order to assess the intra-observer reproducibility. Reproducibility was calculated using the Reproducibility Coefficient (RC) and the Intraclass Correlation Coefficient (ICC). In addition Bland – Altman plots were constructed to assess variability as a function of the magnitude of the individual readings.
Results	Ankle/brachial indices ranged from 0.36 to 2.4, toe pressures from 18 to 195 mmHg and digital/brachial indices from 0.11 to 1.17. The RC showed no significant difference between measurements (p value > 0.1) and the IC showed a high correlation between repeated measurements (0.77 – 0.99) in both groups. Bland-Altman plots indicated that observer variability remained unchanged over the range of measurements for both study groups.
Conclusions	These results confirm both intra- and inter-observer reproducibility of toe pressure measurements in a single vascular laboratory.





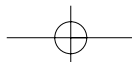
Vacuum Assisted Closure (VAC) – Case Reports

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5.

Introduction	<p>Aim of the study</p> <p>Vascular surgeons are often faced with wounds that require repetitive follow-up visits. These wounds are though and expensive to heal. Wounds can present with elevated levels of pro-inflammatory cytokines, increase level of protease, diminished level of growth factors, may become chronic and have delayed wound healing. We introduced VAC in our department in 2008, and would like to present some of our experiences through three case reports.</p>
Materials/Methods	<p>Case 1: 77 year old female with peripheral vascular disease (PVD) underwent femoro-popliteal bypass BK, complicated with secondary wound infection treated with VAC. Case 2: 63 year old male with PVD underwent several procedures due to critical limb ischemia. Hospitalised for several months and treated with VAC due to chronic wounds after bilateral femoral amputations. Case 3: 63 year old male with post-thrombotic syndrome and venous claudication underwent endovascular (iliac stent) and open abdominal procedures (femoro-caval bypass). Complication with stent perforation of the inferior vena cava (IVC) and secondary abdominal compartment syndrome (ACS).</p>
Results	<p>Case 1: hospitalised two months with VAC treatment. VAC was changed in-ward. Skin-transplant before discharge. Case 2: hospitalised eight months with VAC treatment. VAC was changed in the operation room (OR). Case 3: admitted March 2009 and still under treatment. Treated with delayed abdominal closure. VAC changed in-ward and in the OR.</p>
Conclusions	<p>With the introduction of VAC in 2008, our all over experience is a decreased workload on the nursing staff. Wound follow-ups once a week compared to two to three times per day. We also experienced reduced total costs owing to decreased length of in-hospital stay and wound dressing utilization.</p>





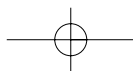
Interdisciplinary Treatment of Visceral and Renal Artery Aneurysms

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1.

Introduction	Aneurysms of the visceral arteries are a rare entity, occurring in about 1% of the general population. The lienal artery is the most affected one (60%), besides that the renal artery is frequently dilated (15-25%). Atherosclerosis and fibromuscular dysplasia next to vasculitis and infections of the target organ are the common causes for aneurysm formation. The symptoms differ widely, in case of a rupture, the mortality is up to 20-70% reported in literature.
Aim of the study	
Materials/ Methods	From January 1985 till October 2008 we treated 45 patients (26 male, mean age 59 years) due to a visceral or renal artery aneurysm. Among the visceral artery aneurysms, the lienal artery was most frequently affected (n=10, 28.6%). We treated 6 patients with aneurysms of the hepatic artery. In 10 cases either the gastroduodenal or pancreaticoduodenal artery was affected. In 10 patients we observed an aneurysm of the renal artery.
Results	The majority of patients was endovascularly treated with a primary success rate of 88%. In 3 cases we performed a staged repair. 5 patients experienced a segmental organ infarction, in 2 cases we produced a dissection of the femoral artery, 1 patient developed a splenic abscess. In 2 cases we converted to open surgery. All renal artery aneurysms were treated by ex-situ repair, with 100% primary patency rates. In one case we observed a late occlusion after 29 months.
Conclusions	Endovascular therapy seems to be today's gold standard in the treatment of visceral artery aneurysms. Elective surgery is applicable with a low perioperative morbidity and provides good long term results. Surgery should be indicated especially in case of a risk for an infarction of the target organ.



2.

One-year Results with a New Treatment Modality for Chronic Dissections**E Mattsson, B Söderberg, O Henriksson**

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Introduction Aim of the study	Chronic type B dissections may dilate to aneurysms with a threatening size. These aneurysms are preferably treated with the placement of a stentgraft covering the main entry. Either the anatomy or the extension of the aneurysm may exclude this type of treatment. These individuals may have to face an open operation or no treatment. New endovascular interventions would be welcome for these complicated cases.
Materials/ Methods	Two patients with thoracic aneurysms secondary to type B dissections have been treated with the placement of a "double-button" septal occluder across the main entry to the false lumen. The outcome has been followed for one year. One patient had a big anomaly of the anatomy of the vessels from the arch combined with an aortic diverticulum. The patient initially developed a dissection from the diverticulum and distally. The other patient had narrow iliac arteries, very sharp angle in the arch and no good proximal landing zone and thereby not ideal for stentgrafting.
Results	The placement of the septal occluders across the main entries was smooth and the false lumen thrombosed immediately. No complications occurred. After one year the aneurysmal diameters had decreased from 62 to 49 mm and from 68 to 46 mm. Initially the true lumen in the abdominal aorta and common iliacs were compressed by 50% but normalized after one year with no false lumen present. In one of the cases the diameter in the abdominal aorta decreased from 26 to 18mm.
Conclusions	Some aneurysms secondary to dissections are difficult to treat with known interventions. Very similar one-year results to endovascular stentgrafts can be achieved by the placement of a "double-button" septal occluder across the main entry to the false lumen. This treatment alternative is promising and might have an indication beyond complicated cases.

102.

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Endarterectomy of the Aneurysm sac in Open Abdominal Aortic Aneurysm Repair Reduces Perigraft Seroma and Improves Graft Incorporation

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Introduction	Serous fluid collections in the original aneurysm sac are a common finding after open abdominal aortic aneurysm (AAA) repair. If large, such perigraft seroma can cause symptoms of compression and even cases of rupture have been described. We assessed, whether endarterectomy of the aneurysm sac rather than mere removal of thrombus would reduce the incidence of perigraft seroma and improve graft incorporation.
Aim of the study	
Materials/Methods	Starting in July 2005, all patients with elective open AAA repair were alternately treated by either conventional thrombectomy or thrombectomy plus endarterectomy of the aneurysm sac. All patients had replacement of the abdominal aorta with a PTFE graft. One year after surgery a CT scan was performed. The maximum axial width of the fluid collection between the graft and the aortic wall was measured by an observer blinded to the operation performed. A fluid collection of >10mm width was defined as perigraft seroma. These are the results of an interim analysis.
Results	One-year postop CT scans of 98 out 112 patients (87%) were available. 51 patients had thrombectomy, 47 had endarterectomy of the aneurysm sac. The maximum axial width of perigraft fluid collection was significantly smaller in patients with endarterectomy (average 5.5 vs. 9.8mm, $p=0.015$). 24 patients (47%) after thrombectomy had a perigraft seroma in comparison to 8 patients (17%) after endarterectomy ($p=0.007$). 14 patients (30%) after endarterectomy had no detectable fluid around the graft as sign of complete tissue incorporation in comparison to 5 patients (10%) after thrombectomy ($p=0.04$). No patients were symptomatic or reoperated for their perigraft seroma. Fluid collection width was larger in patients treated with bifurcated rather than tube grafts.
Conclusions	Our data suggest that endarterectomy of the aneurysm sack in open abdominal aortic aneurysm repair improves graft incorporation. Our relatively high rate of perigraft fluid collection may be due to the use of PTFE rather than polyester grafts.

4.

Multicenter Audio-analysis of the Information Surgeons Communicate to Patients with an Abdominal Aortic Aneurysm

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Introduction	Patients with an Abdominal Aortic Aneurysm (AAA) may be treated with surgery or watchful waiting.
Aim of the study	According to legal and ethical requirements vascular surgeons have to inform patients about the disorder and the pros and cons of the treatment options. The aim of this study is to determine to what extent surgeons communicate this essential information to AAA patients.
Materials/ Methods	At the outpatient clinics of five university and regional hospitals, 35 consultations of vascular surgeons with AAA patients were audio-taped during a six-month period. Three interpreters analysed the tape-recordings independently. Items to be scored were defined according to Dutch (and European) law requirements and ethical considerations. These items were grouped into five categories: (1) characteristics of the disorder; (2) aim and technical aspects of (endovascular) surgery; (3) consequences and risks of surgery; (4) watchful waiting and its aim, procedure, pros and cons; and (5) individual prognosis as to any treatment option.
Results	Consultations were conducted by eleven vascular surgeons and took a median of seven minutes (IQR 5-17 min). Mean AAA diameter was 5.7 cm (SD 1.2 cm). Of all consultations, 71% were first or second visits. Agreement between interpreters was substantial ($\kappa=0.68$ (95% CI: 0.58-0.79)). In only ten consultations (29%), all five domains were discussed at least briefly. Information about the disorder and individual prognosis was usually given (94% and 91% respectively). However aim and technical aspects of surgery, consequences and risks of surgery, and the watchful waiting option were not at all discussed in 34%, 43% and 29% respectively.
Conclusions	The content and amount of information surgeons communicate to AAA-patients lags behind current legal and ethical requirements. This hinders patients in making an informed treatment choice. In addition to surgical expertise to provide the patient with individual prognostications, more and standardised supply of treatment information is needed.

104.

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Early Results after Treatment of Abdominal Compartment Syndrome (ACS) with Traction and VAC-PAC

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Introduction	ACS is seen in patients treated for abdominal aortic aneurism (AAA) and needs decompression with laparostomy. To improve treatment we started to close the laparostomy with fascial traction and VAC-PAC®.
Aim of the study	
Materials/Methods	In patients at risk for ACS after aortic aneurysm surgery, vital signs and intra-abdominal pressure (IAP) were monitored. From 2006-2009, nine patients, age 52-85 years, were diagnosed with ACS. Eight were treated for ruptured AAA (two EVAR), one had thoraco-abdominal aneurysm repair. Six developed respiratory failure, three oliguria and two had the VAC-PAC® at the end of the primary operation. Decompression with laparostomy and vacuum dressing at a negative pressure of 75 mmHg was established. IAP was measured three times daily and kept <15 mmHg. Day two a Prolene® mesh was sutured to the fascial edges to prevent retraction. VAC-PAC® was replaced every 2nd-3rd day, and the mesh tightened in the middle until the fascial edges could be approximated without tension.
Results	Median days until diagnosis was day 1 p.o. (0-13). Median IAP was 25 mmHg (12-40). Organ failure was reversed in all but one patient, who died at day seven. Delayed primary closure of the fascia was completed in all cases at a median time of 10.5 days (7-13). Median number of VAC-PAC® changes was 3 (2-7). One patient died 38 days after closure and another after 50 days, due to heart and respiratory failure respectively. Recurrent compartment syndrome due to pancreatitis was seen once, and led to a second decompression
Conclusions	ACS after aortic surgery was reversed by urgent laparostomy in most cases. Stepwise fascial closing with mesh traction and vacuum therapy prevented large incisional hernias in the short term. Laparostomy care has been improved with the introduction of VAC-PAC®.

6.

Type II Endoleak Embolization with Real-time 3D-Fluoroscopy Needle Guidance
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 Dept of Radiology (1) and Vascular Surgery (2), St. Antonius Hospital, Nieuwegein, The Netherlands

Introduction	Type 2 endoleaks post-EVAR are often treated with percutaneous embolization, which is impossible with complex feeding vessels. A new alternative technique is direct puncture of the endoleak with real-time 3D-fluoroscopy guidance using cone-beam CT.
Aim of the study	
Materials/ Methods	3D-Fluoroscopy uses a flat panel detector system, capable of rotating around the patient in 4-6 seconds. 3D-CT reconstruction of the acquired information is used for needle path planning. The calculated trajectory is then projected on the fluoroscopy image, producing a guiding path. After direct puncture of the endoleak a digital subtraction angiography (DSA) is made, followed by pressure measurement and embolization with Tissuocol®. Control CT (-angiography) after 1 and 6 months were performed.
Results	During follow-up of 936 EVAR patients 6 patients presented with complex type 2 endoleaks with growth of the aortic aneurysm, which could not be treated with transfemoral percutaneous embolization because of complex feeding vessels. All underwent real-time 3D-fluoroscopy with direct and exact needle placement in the type 2 endoleak. DSA confirmed 3 or more complex tortuous feeding vessels. During pressure measurement there was no difference in endotension with the systolic arterial pressure. After injecting the Tissuocol®; endotension disappeared. The initial technical success (embolisation of all feeding arteries) was 100%. No recurrent endoleaks were seen during short-term CT-scan follow-up.
Conclusions	3D-fluoroscopy is a successful treatment modality for complex type II endoleaks post-EVAR. The advantages of this new technique is the possibility to perform DSA, pressure measurement and visualization of real-time embolization, with exact, 3D guided embolisation of the endoleak itself. This technique is quick with little discomfort for the patient and short hospitalization period.

106.

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Syphilitic Aneurysm of Abdominal Aorta in 46 year old Man: a Case Report
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7.

Introduction Aim of the study	To present a case of syphilitic abdominal aortic aneurysm.
Materials/ Methods	We report a case of abdominal aortic aneurysm in 46 year old man with back pain. Abdominal aortic aneurysm was detected on a routine ultrasound scan. The size of the aneurysm was specified on CT. Routine RPR test and the indicators of inflammation were negative. The elective open resection was performed. Final diagnosis was made only by histological examination of the aneurysm sac specimens and positive TPHA reaction.
Results	The treatment involved the open resection of abdominal aortic aneurysm and reconstruction of aorta with straight vascular graft. Postoperatively the patient was treated with intravenous antibiotics. There were no major in-hospital or 30-day complications.
Conclusions	In spite of declining rate of aneurysms due to syphilitic infection, TPHA test and adequate histological examination of the aneurysm sac should be done routinely.

8.

The Role of Ex-vivo Gene Therapy of Vein Grafts with Egr-1 Decoy in the Suppression of Intimal Hyperplasia

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Introduction	The aim of our study was to test the hypothesis that vein graft intimal hyperplasia can be significantly suppressed by a single intraoperative transfection of the graft with a decoy oligonucleotide (ODN) binding the transcription factor Egr-1.
Aim of the study	
Materials/ Methods	Fifty-eight male New Zealand rabbits were divided in 6 groups. All animals were fed a 2% cholesterol diet. A 2.5 cm segment of the external jugular vein was harvested and treated, using a non-distending pressure of 300 mmHg for 20 min, with either Egr-1 decoy (Group A), scrambled ODN (Group B), or vehicle alone (Group C). Vein grafts in group D received no treatment, while grafts in groups E and F were treated with fluorescent-labeled decoy or scrambled ODN, respectively. Half of the animals in groups A, B, C and D were sacrificed after 6 weeks and the other half after 12 weeks. Animals in groups E and F were sacrificed after 48 hours. Paraffin-embedded vein sections were subjected to angiometric analysis. Tangential wall stress was calculated using these measurements.
Results	Successful delivery of the ODN was confirmed by DAPI staining. Quantitative real time PCR revealed a 60% decrease of Egr-1 gene expression (0.39 ± 0.11) in the animals in which Egr-1 decoy ODN was delivered. An increase in medial thickness was found in all vein grafts, which was proportional to the time they were left in place. However, medial thickness was 42-50% lower in the grafts treated with Egr-1 decoy ODN compared with the grafts that were treated with scrambled ODN or vehicle alone at 6 weeks and 30-32% lower at 12 weeks. No significant changes in tangential stress were noted between the various groups.
Conclusions	A single intraoperative pressure-mediated transfection of vein grafts with Egr-1 decoy ODN significantly suppresses intimal hyperplasia in a rabbit hypercholesterolemic model.

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Effect of EVAR with TRF and IRF on Renal Function compared to Open Repair: Long Term Results of a Prospective Comparative Study

M Antonello

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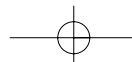
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Introduction	Recent studies have shown that progressive renal dysfunction may develop in patients after EVAR, data are conflicting about the effect of EVAR on renal function compared with open repair (OR). The purpose of this prospective study was to assess the effects of EVAR both with TRF and infrarenal fixation (IRF) versus OR on renal function detected with serum creatinine (SCr), creatinine clearance (CrCl) and renal perfusion scintigraphy (RPS) and to compare them with OR.
Aim of the study	
Materials/Methods	A prospective study was carried out at the Department of Vascular Surgery - University of Padua, from January 2003 to June 2006. To assess renal function a RPS, SCr, CrCl (estimated with the Cockcroft-Gault) were performed preoperatively and in the 4th postoperative day. A postoperative change $\geq 20\%$ of SCr, CrCl or of the glomerular filtration rate (GFR) at the RPS was considered significant for renal dysfunction. The follow-up included: dosage of SCr, CrCl, duplex scan of renal artery and angio-CT at 6, 12 months and than yearly. Patients with a preoperative SCr > 2.5 mg/dl were excluded.
Results	The patients enrolled in the study were 320; 111 underwent EVAR; 57 (51.3%) received a TRF and 54 (48.7%) a IRF; 209 underwent open repair. No significant change were observed for SCr, CrCl from the preoperative to the postoperative period (4th day) in both EVAR groups. A significant reduction of the GFR at the RPS was observed in 9 patients (8.1%), 5 (8.8%) from the TRF group and 4 (7.4%) from the IRF group in absence of relevant variation of SCr and CrCl. In 5 patients (4.5%; 3 TRF, 2 IRF) the decrease was limited to a single kidney. No difference emerged by comparing preoperative and postoperative RPS, SCr and CrCl, between EVAR group and OR. During the follow-up period (mean 54 months, range 30-72), a progressive and significant decline of renal function, assed by SCr and CrCl, was observed in EVAR group (16% of variation of biochemical markers). By contrast in OR group renal function remained stable. No sign of renal artery occlusion or renal infarction was observed at the angio-Ct and renal artery duplex scan.
Conclusions	An early decrease of renal function is seen after EVAR at the RPS in 8.8% of patients, regardless of fixation level. Long-term results showed a worsening of renal function in EVAR group respect to OR ($p < 0.05$, at 60 months); this results should be considered in selecting patients with a preoperative renal insufficiency for this procedure.

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10.

Virtual Angioscopy, and 3D Navigation: New Technique in the Analysis of the Aortic Arch after Vascular Surgery

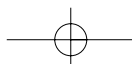
N Louis

Dept. of vascular surgery, Hopital Henri Mondor. Creteil, France

Introduction	Anatomy of the aortic arch is highly variable and can be drastically altered by surgical or endovascular procedures. Its detailed analysis on CT scans might be aided by latest generation reconstruction techniques such as virtual angioscopy (VA). In the present study, we have evaluated the benefit of VA for the assessment of aortic arch abnormalities in patients with prior surgical or endovascular procedures.
Aim of the study	
Materials/ Methods	We have analyzed post-procedural CT-scans of 103 patients who underwent thoracic aortic procedures between 2006 and 2009 at our institution. Patients were classified into 3 groups: surgical (group A, n=26), hybrid (group B, n=27) and endovascular (group C, n=50), procedures. A 64 Light Speed VCT multidetector-row computed tomography was used, allowing maximal intensity projection, maximal projection rendering imaging, and 3D rendering of images. VA reconstruction was performed and volume rendered thresholds and spatial rendering were applied that generated endoluminal views.
Results	Multiplanar reconstructions detected 46 abnormalities in 39 patients. Abnormalities included inadequate apposition of the proximal rim of a stentgraft (n=21), abnormalities of the stentgraft itself (n=11), aortic aneurysm (n=6), residual intimal tears (n=5) and secondary dissection (n=3). VA provided additional information in 76% of cases (35/46) and most contributive after previous endovascular procedures (Group A: 54% [7/13], group B: 75% [9/12], group C: 95% [19/20]). VA allowed improved localization of abnormalities in respect to supra-aortic vessels, 3D measures of inadequate stentgraft apposition in relation to the aortic wall, and precise analysis of kinking or inadequate apposition of overlapping stentgrafts. VA diagnosed 2 false aneurysms and one retrograde dissection developed on a suture line.
Conclusions	VA conceptualizes plan images in 3D reconstruction. It provides additional information in comparison to conventional CT scans by allowing precise localization of abnormalities in respect to the aortic wall itself and supra-aortic vessels. Furthermore it facilitates analysis of abnormalities in case of overlapping stentgrafts.

110.

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4D Imaging of Type B Aortic Dissection using Real Time Self-Respiratory Gated Cardiovascular Magnetic Resonance Imaging

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Introduction	Current imaging of aortic dissection inadequately describes flow and dynamic wall movements.
Aim of the study	Flow sensitised, four-dimensional (4D) cardiovascular magnetic resonance (MR) imaging is a novel technique that provides time-resolved imaging and the ability to quantify geometry, volumetry and flow. Respiratory and cardiac gating minimises artefact. The aim of this study was to validate 4D-MR in patients with Type B aortic dissection.
Materials/Methods	An ECG-gated 4D cardiovascular magnetic resonance protocol (Philips 3 Tesla Medical Systems) was developed in healthy volunteers (n=4) and then prospectively validated in patients with Type B aortic dissection (n=5; dissection >14 days old). Free-breathing navigator tracking of the diaphragm provided respiratory-gating. Data were post-processed using Achieva (Philips), Cardiac3D and GtFlow (GyroTools). Flow velocities and volumes were quantified at four aortic levels. Four-dimensional velocity and volume data were validated by comparison to 2D phase-contrast data.
Results	In all patients with dissection flow was visualised with 3D streamlines and time-resolved 3D particle traces. The primary entry tear was accurately visualised with colour encoded flow images. True and false lumen flow was quantified. Wall and flap movements were visualised to assess dynamic variations in true lumen flow. Comparison of 2D and 4D flow data using Bland Altman plots and paired t-test illustrated close agreement between the two methods (Bias 7 (-60 - 70) and (r=0.99 (0.98-0.99), p<0.001) respectively. False lumen flow magnitude and regurgitant fraction indicated distal entry tears.
Conclusions	Flow-encoded MR imaging in patients with Type B aortic dissection is both feasible and accurate. Application of 4D-MR provides important clinical information that will aid the assessment and treatment of aortic dissection.



12.

Maximum Peak Wall Stress is Associated to Increased Glucose Metabolism in Abdominal Aortic Aneurysm Wall Assessed by FDG-PET-CT

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Introduction

Aim of the study

Interactions of biomechanical forces and subsequent tissue reactions in the wall of abdominal aortic aneurysm (AAA) are postulated frequently for AAA pathogenesis and rupture but so far have never been demonstrated in vivo. Meanwhile individually acting forces can be calculated precisely by computational finite element analyses (FEA) and metabolic activity of AAA wall can be visualised by 18F-fluorodeoxyglucose positron emission tomography/angiography CT (FDG-PET/aCT). For better insights in stress-tissue interactions in AAA in vivo we analysed therefore the correlation of computational biomechanics with metabolic activity.

Materials/Methods

FDG-PET/CT data sets of 6 AAA patients with notably increased FDG uptake in AAA wall were studied. For further analyses detailed 3-D geometry of each AAA including thrombus was reconstructed from aCT-3mm-slices. Later sophisticated ortho-pressure-FEA-simulations including thrombus and pre-stress state of AAA geometry were performed using non-linear material and geometrical model assumptions. Consequently peak wall stresses (PWS), strains and their distributions were obtained and visualised. Further FDG-PET clouds were anatomically fitted, reduced to FDG activity in AAA wall, mathematically processed (Gauß-filter, Rank-order-filter), superimposed to the 3-D AAA geometry. Moreover, the maximum standard uptake values (SUVmax) of metabolic activity were acquired. Subsequent PWS and strain values and their local distributions were correlated to corresponding FDG-uptake in AAA wall.

Results

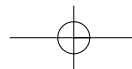
SUVmax of AAA wall varied from 3.7–4.6 (mean 4.1 ± 0.33) and computational PWS and strains ranged from 29.0 N/cm² to 64.0 N/cm² (mean 48.3 ± 127 N/cm²) and from 0.20 to 0.26 (mean 0.236 ± 0.021) respectively. Maximum PWS levels showed a trend to be correlated with SUVmax ($R = 0.38$). In all but one patient areas with increased FDG uptake showed well and visible correlation to areas with increased computational PWS and strains while areas with low PWS and strains showed no or negligible metabolic activity.

Conclusions

Our results indicate that in most cases biomechanical forces in vivo are correlated regional and quantitatively to increased FDG uptake in AAA wall. These findings strongly support the hypothesis of complex interactions between tissue reactions and biomechanical forces in AAA pathogenesis and rupture. However, larger studies are needed to confirm these findings.

112.

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Carotid Angioplasty Combined with Intensive Lipid-lowering Therapy Reduces Novel Inflammatory and Calcification Markers and Increases the Contralateral GSM Score in Patients with Carotid Stenosis

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- Introduction** Osteopontin (OPN) and osteoprotegerin (OPG) constitute vascular calcification inhibitors. These biochemical agents and Gray-Scale Median (GSM) score have all been implicated in carotid plaque vulnerability. The aim of the present study was to assess the effects of intensive lipid-lowering therapy and carotid artery stenting (CAS) on the aforementioned markers in patients with carotid stenosis.
- Aim of the study**
- Materials/ Methods** At baseline 40 patients (group A), aged 55-75, who had recently experienced stroke or TIA attributed to ipsilateral carotid stenosis (NASCET: >70%) were enrolled. All patients in this group had also atherosclerotic plaques in the contralateral carotid artery without critical stenosis (NASCET: <60%). Asymptomatic patients (group B) with carotid stenosis, but not requiring surgical intervention (NASCET: 30-60%) were also included. Patients already receiving lipid-lowering therapy or with previous carotid revascularization were not eligible. After initial brain CT, carotid ultrasound was performed at the beginning and after 6 months and GSM score was calculated in the contralateral only carotid in group A and in both carotids in group B. Patients in group A underwent CAS, within 15 days from the cerebrovascular event. All patients were treated for 6 months with atorvastatin (gradual titration 10-80mg) to target LDL<100mg/dl. Blood pressure, lipid profile, hsCRP, serum OPN and OPG were measured. Independent and paired-samples t-test and Pearson correlation were used for statistical analysis.
- Results** At baseline, group A had significantly higher OPN, OPG and hsCRP levels than group B. There was no significant difference in the rest of variables and GSM score between groups. Six-month atorvastatin treatment equivalently improved lipid profile in both groups ($p<0.05$). hsCRP, OPN and OPG were significantly downregulated in both groups, but to a greater extent in group A ($p<0.001$). Most importantly, GSM was significantly improved from baseline in both groups ($p<0.001$). However, there was a remarkable increment in the contralateral GSM score in group A (from 66 ± 20.55 to 112 ± 29.65 ; $p<0.001$) than in group B (from 62.12 ± 16.65 to 94.71 ± 22.56 ; $p<0.001$) (A vs B; $p<0.003$). These changes were inversely correlated with changes in OPN ($p=0.014$) and OPG ($p=0.011$).
- Conclusions** In patients with carotid stenosis, CAS plus intensive lipid-lowering therapy attenuates inflammatory burden and calcification-inhibitors and enhances contralateral carotid plaques stability.

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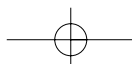
14.

Resection of the Carotid Body and the Carotid Sinus Nerve during Eversion Carotid Endarterectomy (eCEA) is not Associated with Postoperative Blood Pressure Instability
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Introduction Aim of the study	Uncontrolled hypertension after CEA may cause myocardial infarction, stroke, or death. There is little knowledge regarding the influence of the resection of the carotid body (CB) and the carotid sinus nerve (CSN) during CEA with regard to postoperative blood pressure (RR) regulation. In eCEA resection of the tissue within the bifurcation facilitates the procedure. The aim was to investigate the influence of CB/CSN resection during eCEA.
Materials/ Methods	From 3/07 to 3/08 100 consecutive patients undergoing eCEA for a primary high-grade internal carotid artery (ICA) stenosis without contralateral pathology were selected for this study. In group A (n=50) the resection of the CB/CSN was confirmed by histology. In group B (n=50) no CB/CSN tissue was detected in the specimen. RR was continuously monitored postoperatively for 24 hours, and at a single point at 30 days. Groups were compared using the t-test and the chi-squared test. In multivariate analysis logistic regression and a generalized linear model was used.
Results	Both groups were equal with regard to cardiovascular risk factors degree of stenosis and indication for surgery (p = n.s.). Postoperatively the mean number of interventions for hypertension in group A was 0.82 vs 0.94 in group B (p = 0.558). Postoperative continuous RR measurement in both groups was not significantly different (p = 0.754). No neurological deficit was observed, and hematoma evacuation was performed once in group B. Multivariate analysis did not show any significant influence of any factor influencing postoperative RR instability. After 30 days no RR difference was observed between both groups.
Conclusions	In contrast to current belief, our study shows that the tissue within the carotid bifurcation does not always contain the CB/CSN, and if so, the resection is safe and does not trigger postoperative RR instabilities in the early or midterm postoperative period.

114.

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Safety of Endovascular Treatment of Supra-aortic Trunks Occlusive Lesions: Interest of Using Appropriately Cervical and Femoral Approaches
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Introduction	To evaluate the appropriateness of using two approaches -retrograde cervical and antegrad femoral- for the endovascular treatment of occlusive lesions of the supra-aortic trunks (SAT: brachio-cephalic arterial trunk (BCT) and the left and right common carotid arteries (CCA)).
Aim of the study	
Materials/ Methods	Between 1995 and 2005, 45 selected patients (32 men and 13 women, average age: 61 years) had 50 primary endovascular treatments of SAT. There were 48 high-grade stenoses (96%) and 2 occlusions. Lesions were of atheromatous origin in 34 cases (68%), non-atheromatous in 16 cases (32%) and symptomatic in 17 cases (34%). The target lesions included 25 left CCA (50%), 13 BCT (26%) and 12 right CCA (24%). The lesions were ostial in 25 out of 50 cases (50 %), located in the middle third in 21 cases (42 %) and were distal in 4 cases (8%). The ostial lesions were usually reached via a retrograde cervical approach whereas other lesions were predominantly approached via a femoral access unless there was an atherosclerotic aortic arch particularly at risk of embolization.
Results	The average follow-up was 17.2 months (1-70). Technical success was 98% with stenting performed in 49 lesions (98%). A protecting carotid device was used in 53% of the femoral approaches. The cumulative death/stroke rates at 1 month were of 0%. The rate of restenosis and occlusion was 18.4%. At 2 years, the primary, the assisted primary, secondary patency rates were of 73.7%, 90.3% and 97.8% respectively. The rate of ipsilateral stroke prevention was 92.3% at 5 years. The rate of survival at 7 years was of 69.8%.
Conclusions	Endovascular treatment of the SAT with appropriate use of retrograde cervical or antegrade femoral approaches contingent of the lesion's characteristics result in a procedure as safe as possible. The rate of restenosis was higher than that observed after conventional surgery and stenting of the internal carotids. However, the restenosed arteries remained always accessible for redilatation or surgery.

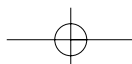


16.

Sex Difference in Composition of Plaques of Patients Undergoing Carotid Endarterectomy
K Rerkasem
Chiang Mai University, Thailand

Introduction	This study examined the hypothesis that women have more stable plaques (lower proportion of lipid component and higher proportion of fibrous tissue) compared to men. This may explain the observation that carotid endarterectomy (CEA) is less likely to be of benefit in stroke prevention in women.
Aim of the study	
Materials/ Methods	Plaque specimens of 141 consecutive CEA patients (60 females and 81 males) were studied. Medical histories were recorded and the plasma concentrations of cholesterol and inflammatory markers, including soluble vascular adhesion molecules, high sensitivity C-reactive protein, were measured. The specimens were analysed histologically using the methods of the European Carotid Plaque Study Group.
Results	No significant difference was found between males and female patients for risk factors, plasma cholesterol, and inflammatory markers. Plaques from females had significantly less lipid than those from males ($p = 0.01$): the mean percentage of plaque lipid for women and men was 47.8% and 58.2%, respectively. Plaques from females had more fibrous tissue than those from men ($p = 0.02$): the mean percentage of fibrous tissue for women and men was 38.8% and 29.8%, respectively.
Conclusions	Histology carotid artery plaques from women appear more stable than those from men. This might partially explain why CEA appears to offer less benefit in stroke prevention in women.

116.

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Carotid Endarterectomy in Diabetic Patients
W. Dorigo, R. Pulli, A. Alessi Innocenti, C. Pratesi
 Dept. of Vascular Surgery, University of Florence, Italy

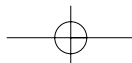
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Introduction	To evaluate early and late results of carotid endarterectomy (CEA) in diabetic patients in a large single center experience.
Aim of the study	
Materials/ Methods	Over a 12 year period ending in December 2008, 4304 consecutive CEAs were performed. All patients were prospectively enrolled in a dedicated database. Patients were diabetics in 882 (20.5%) of cases (Group 1) and non diabetics in the remaining 3422 (Group 2). Early results in terms of intraoperative neurological events and 30-day stroke and death rates were analyzed and compared. Follow-up results were analyzed with Kaplan Meyer curves and compared with log-rank test.
Results	There were no differences between the two groups in terms of preoperative clinical status or degree of stenosis. Interventions were performed under general anaesthesia with somatosensory evoked potentials (SEPs) monitoring in 67% of patients in both groups. Shunt insertion (8.5% and 10%, respectively) and patch closure rates (79% and 76%, respectively) were similar between the two groups. There were no differences in terms of intraoperative neurological events (1.1% and 0.7%, respectively), however, 30-day stroke and death rates were significantly higher in group 1 (2.1%) than in group 2 (0.8%; $p=0.002$). Perioperative risk of stroke and death in diabetic patients was significantly impaired by the use of general anaesthesia ($p=0.01$). Median duration of follow-up was 27 months. Estimated 60-month survival rate was diminished in group 1 compared to group 2 (94% and 96.5%, respectively; $p=0.002$, log rank 9.3). There were no differences between the two groups in terms of freedom from ipsilateral neurological symptoms and from any neurological symptom. Estimated freedom from severe (>70%) restenosis at 60 months was significantly lower in group 1 than in group 2 (91% and 94.5%; $p=0.009$, log rank 6.7).
Conclusions	In our experience the presence of diabetes mellitus significantly affects perioperative and long-term results of CEA. Careful attention should be paid to the choice of anaesthesia.

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18.

A Mechanistic Study of Micro-vessel Density and Angiogenic Growth Factor Expression in Symptomatic versus Asymptomatic Carotid Plaques

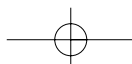
M Chowdhury

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Introduction	Elucidation of the pathogenesis of atherosclerotic plaque vulnerability
Aim of the study	will allow a better understanding of the conversion of inactive to active plaque, and contribute to a more efficient patient selection strategy for interventional carotid surgery. An association between intimal neovascularisation and plaque instability in patients with peripheral vascular disease has been described. This study aims to test the hypothesis that unstable microvessels within carotid atherosclerotic lesions are associated with symptomatic disease, and to determine the cellular and molecular mechanisms underpinning pathological angiogenesis and microvessel maturation.
Materials/ Methods	Carotid endarterectomy (CEA) specimens from symptomatic and asymptomatic patients have been histologically interrogated. Fluorescent staining with the endothelial marker UEA-1 and immunohistochemistry has been used to analyse plaque microvessel density and angiogenic growth factor expression. Quantitative-PCR analysis has established the expression of the angiogenic growth factors, CD105, hepatocyte growth factor (HGF) and its receptor c-Met.
Results	Fluorescent staining demonstrated significantly higher neovessel density in symptomatic vs asymptomatic plaques ($P=0.042$). Quantitative-PCR results confirmed a quantitative difference in mRNA transcripts for CD105, HGF and c-Met in the symptomatic group, supporting the above hypothesis (Figure 1).
Conclusions	Symptomatic carotid disease is associated with increased neo-vascularisation and expression of HGF and c-Met. The transition from a stable to an active plaque may thus be partly mediated by an increased expression of angiogenic factors. Current work involves transcription profiling, using microarray analysis of laser capture dissected microvessels from CEA specimens of both patient groups, together with bioplex suspension arrays to identify potential clinical biomarkers that may correlate to growth factor expression in the microvessels and subsequent plaque phenotype.

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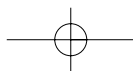




Operative Outcomes Using a Structured Branched Thoracic Aortic Graft (STAG) in a 17-year Experience with 615 Thoracoabdominal Aneurysms
P De Rango, A Estrera, C Miller, T Lee, K Keyhani, S Abdullah, H Safi
Dept of Cardiothoracic and Vascular Surgery, University of Texas, Medical School Houston, Texas, USA

19.

Introduction Aim of the study	Patch or island re-attachment of visceral arteries during thoraco-abdominal aortic repair is common and is more technically expedient than individual bypasses to each vessel. However, young patients, or those with genetic diseases which predispose to rapid aortic expansion, may be at risk for enlargement of the visceral patch over time. We use a pre-manufactured Structured branched Thoracic Aortic Graft (STAG) in these patients, which eliminates the need for proximal artery-graft anastomoses. Here we report our short-term results.
Materials/ Methods	Between February 1991 and June 2008, we repaired 615 thoraco-abdominal aneurysms requiring re-attachment of the visceral arteries. Forty of these were repaired using the prefabricated STAG graft, 67 were re-attached using individual bypasses and 508 were re-attached as a patch. We measured operative times, blood utilization and clinical outcome in the three groups.
Results	Postoperative renal failure was significantly higher in the direct bypass group than the other two groups, even after accounting for clamp time and preoperative glomerular filtration rate (GFR) (adjusted odds ratio 3.1; P<0001). Renal failure rates for patch technique did not differ from STAG after adjustment for GFR. Mortality and neurologic deficit were comparable across all three vessel-management groups when GFR was accounted for. Packed red blood cell use did not differ among groups.
Conclusions	In situations where re-attachment of the visceral vessels may be unfavorable due to risk of late patch expansion, use of a prefabricated branch graft, despite higher technical complexity than island re-attachment, produces superior short-term results when compared with direct individual by-pass technique. This is presumably due to improved anastomotic mechanics. Long-term follow-up is warranted in future research.



20.

Endovascular Approach to Arch Aneurysms: Ten Years Experience
E Civilini, R Chiesa, G Melissano, L Bertoglio, Y Tshomba, EM Marone
"Vita-Salute" University, Milan, Italy

Introduction	Initially proposed for compassionate therapy, in the last years, endovascular stent grafting of the aortic arch with broadened indications is supported by an increasing number of Authors. Aim of this study is to evaluate the results of our decennial experience.
Aim of the study	
Materials/ Methods	Between January 1999 and January 2009, 109 patients (mean age 70.6 ± 10.7) underwent stent-grafting of the aortic arch at our institution using commercially available tube stent-grafts. We gradually introduced aggressive revascularization of the left subclavian artery with its endovascular proximal occlusion as an adjunct for cerebro-spinal protection. Patients were divided into 3 groups according to Ishimaru's classification. Seventy-three cases underwent an hybrid approach with supraortic vessels re-routing.
Results	Results are summarized in table I. Data analysis revealed a significantly higher incidence of postoperative stroke and type I endoleak respectively in zone 0 and 1.
Conclusions	Endovascular treatment of aortic arch is feasible with reasonable midterm results. The peculiar anatomy of the arch requires a careful planning and intraoperative management of the supraortic trunks in order to minimize the risk of cerebro-spinal accidents and achieve an adequate length neck.

120.

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Spinal Cord Injury is not Negligible after TEVAR for Lower Descending Aorta
 H Matsuda, T Fukuda, O Iritani, T Nakazawa, H Tanaka, H Sasaki, Ki Minatoya, H Ogino
 Dept of Cardiovascular Surgery, Dept of Radiology, National Cardiovascular Center, Osaka, Japan

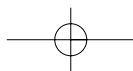
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Introduction	To clarify the incidence of spinal cord ischemia (SCI) after TEVAR, the influence of closure of the intercostal arteries which supplies the Adamkiewicz artery (ICA-AKA) was investigated.
Aim of the study	
Materials/Methods	Among 61 patients who underwent TEVAR (Gore TAG:33, MK stent-graft:28) during last 22 months, the stentgraft was placed among Th7 and L1 vertebrae level in 32 patients (27 male, 57-85 year-old) whose ICA-AKA had been identified by MRA/CTA; Th7:1, Th8:6, Th9:14, Th10:7, Th11:3, Th12:1, L1:1 (one patient had double AKA). The history of thoraco-abdominal and/or abdominal aortic graft replacement was observed in 13 patients. In 2 patients the left subclavian artery was closed by TEVAR and the bypass surgeries had been performed before TEVAR. The number of aortic zones excluded by TEVAR were 5 zones in 6 patients, 6 zones in 6, 7 zones in 2, 8 zones in 4, 9 zones in 4, 10 zones in 8, 12 zones in 1. In all patients motor evoked potentials were monitored during TEVAR and a cerebrospinal fluid drainage tube was placed before TEVAR in 23 patients. When SCI developed, the mean blood pressure was maintained above 80mmHg, spinal drainage ($\leq 15\text{cmH}_2\text{O}$) was started, and cortico-steroid and naloxone were infused.
Results	No ICA-AKAs were closed in 9 patients. Among 23 patients whose ICA-AKA was closed, the occlusion of ICA-AKA at its origin was confirmed before TEVAR in 4 patients. The SCI was observed in 2 patients whose patent ICA-AKA was closed. One of them developed SCI 24 hours after TEVAR and could not ambulate. The other developed SCI 10 hours after TEVAR and recovered to full ambulation within an hour. The estimated rate of SCI was 6.3% when TEVAR covered a part or entire portion of aorta between Th7 and L1 I. However the rate increases to 10.5% when the patent ICA-AKA was closed by TEVAR.
Conclusions	SCI is not negligible when the stentgraft is placed below Th7 especially when the ICA-AKA is patent.

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22.

Surgical Treatment of Acute Mesenteric Ischemia

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Introduction	Acute mesenteric ischemia (AMI) remains one the most difficult
Aim of the study	problems of urgent surgery with mortality rate up to 70-100%. The aim of this study was to assess the place of revascularization in surgical treatment of AMI , its complications, to elaborate optimal tactics depended on different causes and stages of disease and investigate prognostic factors of outcome.
Materials/ Methods	149 patients with AMI were analyzed in this study (67 with arterial thrombosis, 60 with thromboembolism, 9 with venous thrombosis, 7 with nonocclusive, 3 with aortic dissection and 3 with other causes). Ischemia only, bowel infarction and peritonitis was found in 39, 51 and 59 cases respectively. 127 pts were operated. Revascularization was performed in 26 pts; gut resection was added in 10 of them. Primary bowel resection, explorative laparotomy, mesenteric vessel exploration with mesenteric plexus blockade and other operations were done depended upon intraoperative findings.
Results	In ischaemic stage revascularization was performed in 16 pts. Eight pts died because of MOF, reperfusion syndrome (no-reflow), ischaemic stroke and purulent enterocolitis in 4, 2, 1 and 1 cases respectively. Rethrombosis was not seen in any case. In 11 pts bowel resection was added to revascularization procedure because of mesenteric infarction. Survive only 2 pts. Main causes of death were thrombosis of microcirculation (pathologic exam), no-reflow, MOF, thromboembolic stroke and MI in 3, 1, 3, 1 and 1 pts respectively. Strong correlation according to Pearson's test was found with lethal outcome and AMI with peritonitis ($p=0.001$, $r=0.8$); moderate - with mesenteric infarction ($p=0.01$, $r=0.39-0.56$). Also strong correlation was found between survival and revascularization in ischaemic stage ($p=0.001$, $r=0.78$) and moderate if mesenteric infarction occurred ($p=0.01$, $r=0.54$).
Conclusions	<ol style="list-style-type: none"> 1. Revascularization prevents progression of mesenteric ischemia in pts with acute superior mesenteric artery occlusion. 2. Bowel infarction aggravates significantly outcome of revascularization. 3. Different tactics of revascularization must be taken depended on cause and stage of AMI. 4. No-reflow phenomenon, thrombosis of microcirculation, intramural bacterial invasion of gut wall were the main causes of worse outcome after successful restoration of blood flow in mesenteric vessels.

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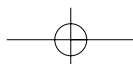
Vein Preservation Treatment of Aneurysm Developed in Arterio-venous Fistula: an Exoprosthesis to Reinforce Venous Aneurysmorrhaphy

X Berard

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23.

Introduction	We propose a new technique to treat venous aneurysm (VA) developed in arterio-venous fistula (AVF): venous aneurysmorrhaphy associated with exoprosthesis to reinforce the repaired vein. Our objectives: avoid AVF ligation, preserve the vein and prevent aneurismal recurrence.
Aim of the study	
Materials/ Methods	Since August 2007 we prospectively selected patients with VA. Briefly, the arterialized vein was disconnected from the artery and dissected with staged cutaneous incisions, up to its healthy area. The vein was externalized, and calibrated with a 6-8mm cannula before the aneurysmorrhaphy. The repaired vein was then wrapped with a macroporous exoprosthesis and tunnelized subcutaneously and a new anastomosis was performed. Preoperative, operative, and follow-up data were recorded. AFV patency, diameter and flow measurement were assessed by duplex scan at 1, 6 and 12 months.
Results	We selected 37 patients with VA developed in AVF, with no possibility of cannulation in healthy vein segment. 5 patients were excluded because of a VA related to a central vein stenosis. We operated 32 patients: 7 rapid expansion or painful VA; 8 VA related to frequent bleeding or damaged overlaying skin; 1 VA next to a stenosis; 16 VA associated with highflow. The average length of wrapped vein was 22cm. AVF were cannulated in the repaired zone after the 30th post-operative day. The mean follow-up was 8 months (range, 1-17 months). The primary patency rate at 12 months was 96%. No aneurysm or infection occurred in patients. Highflow correction was effective in 12/16 patients and 4/16 patients underwent a new procedure to correct the flow (1 thrombosis).
Conclusions	This technique offers good results in terms of patency. Highflow correction is not always feasible. About the prevention of aneurism recurrence, more long term data is requested.



24.

Endovascular Hybrid Versus Open Repair in Patients with Marfan Syndrome and Thoracoabdominal Aortic Aneurysms

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Introduction	Endovascular repair of Marfan syndrome is contentious. We compared
Aim of the study	endovascular hybrid versus open repair in patients with Marfan syndrome and medial degeneration thoracoabdominal aortic aneurysms (TAAAs).
Materials/Methods	Patients collected from a prospective TAAA database (1993-2008) were reviewed. 30 day and late, mortality and morbidity were assessed.
Results	<p>21 patients underwent 24 procedures (18 elective/urgent, 3 emergencies). 9 patients (4 males), median age 51.3(35.9-68.4), underwent 11 hybrid (2 arch, 9 visceral) endovascular procedures (4 type-II, 4 type-III) and 1 patient had thoracic stenting alone. 12 patients (11 males), median age 43.3 (22.6-55.5), had open TAAA repair (5 type-II, 3 type-III, 4 type-IV).</p> <p>Mean follow-up was 23(1-129) months. 30 day mortality occurred in 1/9 following endovascular hybrid repair and 2/12 patients following open repair. Late mortality; 3/9 and 2/12 patients respectively of unrelated causes. Mean ITU length of stay (LOS) was 13.1(SD=13.1) vs 12.3(SD=13.3). Total hospital LOS was 36.0(SD=16.2) vs 27.4(SD=20.4) days in the endovascular hybrid and open groups respectively. Stroke 0 vs 1/12, respiratory complications 3/9 vs 4/12, limb ischaemia 0 vs 1/12, cardiac failure/arrhythmia 1/9, vs 2/12, renal impairment 1/9, vs 2/12, permanent paraplegia 0/9 vs 2/12 were observed in the endovascular and open groups respectively. 6 patients developed endoleaks: 3/6 type 1b, 1/6 1a&amp;1b, 1/6 2&amp;3, 1/6 1b&amp;2 necessitating corrective procedures.</p>
Conclusions	In patients with Marfans and medial degeneration, endovascular repair provides comparable but not better results than open surgery. Significant re-intervention rates secondary to endoleaks were however observed.

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Internal Carotid Stenosis Imaging: Doppler Derived Maximal Systolic Acceleration Compared to Peak Systolic Velocity and Magnetic Resonance Angiography Recordings

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Introduction	To assess the value of the Doppler derived maximal systolic acceleration (ACC max) for diagnosing and grading atherosclerotic carotid artery disease. For this purpose, we compared ACC max and the peak systolic velocity (PSV) of the internal carotid artery (ICA) with magnetic resonance angiography (MRA) recordings.
Aim of the study	
Materials/Methods	26 symptomatic and 57 asymptomatic patients with carotid artery stenosis were examined by duplex ultrasound. ICA PSV, common carotid artery (CCA) PSV and ACC max were measured. All patients underwent MRA by time-of-flight (TOF) MRA or by contrast enhanced (CE) MRA. 40 carotid arteries examined by CE-MRA and 111 carotid arteries examined by TOF-MRA were used for analysis. Linear regression was used to determine the association between ACC max, ICA PSV and the degree of stenosis measured on the MRA recordings. Receiver operating characteristic curve analysis was performed to compare ACC max and ICA PSV to search for an optimal ACC max cut-off value for diagnosing ICA stenosis $\pm 70\%$.
Results	Adjusted R^2 of 0.86 and 0.82 were determined for respectively ACC max and ICA PSV compared to the degree of stenosis measured on both TOF-MRA and CE-MRA. Adjusted R^2 of 0.91 and 0.81 were determined for respectively ACC max and ICA PSV compared to the degree of stenosis measured only with CE-MRA. Adjusted R^2 of 0.69 and 0.62 were determined for respectively ACC max and ICA PSV compared with TOF MRA. Areas under the curve were 0.995 (95% CI 0.98-1.0) and 0.929 (95% CI 0.843-1.0) for ACC max and ICA PSV respectively. An ACC max cut-off value of $>2.5 \text{ m/s}^2$ is predictive for the exclusion of $\geq 0\%$ ICA stenosis.
Conclusions	Doppler derived ACC max is an accurate marker and a useful screening tool for diagnosing and grading atherosclerotic carotid artery disease and is even more reliable than the current ICA PSV measurement. Besides, compared to PSV, ACC max can always be measured OF the ICA is always accessible for measuring the ACC max is always accessible and easy to perform.

How to Make Results Comparable in TAAA Repair? – The EuroSCORE in Hybrid-Procedures

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Introduction

Aim of the study

Thoracic endografting is emerging as an alternative in the surgical management of patients who have thoracoabdominal aortic aneurysms (TAAA) or aortic dissections (TAAD). Due to the high morbidity and mortality rates associated with open TAAA repair, and on the other hand, patients rejected from conventional open repair because of the concomitant illness, vascular surgeons are searching for innovative methods to repair such aneurysms. A combined endovascular and open approach (hybrid repair) involves aortic debranching to create a landing zone for the endograft. To make the results of this new approach comparable to the results of traditional open repair, and to compare the results from different groups handling the same approach, risk stratification schemes could be applied. The aim of the study was to evaluate risk-stratification scheme of the additive and logistic EuroSCORE in patients undergoing hybrid procedures.

Materials/ Methods

The EuroSCORE scoring system was inaugurated in 1999 to stratify cardiac surgical procedures. The score incorporates patient-related factors, cardiac-related factors, and operation-related factors. Additive and logistic mathematic procedures generate a sum score, which is correlated to an expected mortality. Within an experience of 520 aortic stent-grafts (1998 - May 2009), 32 of the patients (22 men, age in median 67.5 years, min-max 35–88) with TAAA (Crawford type I, II, III, and V) were treated with a hybrid procedure. The procedures were electively conducted in 22 patients; 10 patients were treated urgently or as emergencies. To lengthen the prospective proximal landing zone, arch debranching (carotid carotid bypass, subclavian carotid transposition) was performed in 4 patients additionally. Following the revascularization of the visceral branches via transperitoneal bypass grafting using the infrarenal aorta or the iliacs as donor vessel, the aneurysm (75 [70 – 100 mm] mm) was subsequently excluded by stent-graft deployment. Univariate analysis was performed to evaluate the additive and logistic EuroSCORE and to correlate to mortality.

Results

The entire procedure was technically successful in 32 patients. Mortality in electively performed procedures was 18% (4/22 pts.), whereas the mortality in emergency cases increased to 60 percent (6/10 pts) ($p=0.018$; Pearson's chi-square test). The additive EuroSCORE as well as the logistic EuroSCORE discriminated significantly between the survival group and the lethal group (mean \pm SD) additive EuroScore: 6.82 ± 2.4 vs. 11.6 ± 3.3 ($p<0.001$; Student's t-test); logistic EuroSCORE: 11.6 ± 9.7 vs. 34.02 ± 21.3 ($p<0.001$)).

continued

Conclusions

The EuroSCORE scoring system, validated in cardiac surgical procedures to stratify the operative risk, seems to be a reliable risk-stratification score in hybrid procedures. Conceptionally, the scoring has to be adept to the concrete procedural items of the abdominal hybrid procedures. Moreover, relevant parameters like the hepatic function should be added. Despite these limitations, the EuroSCORE system gives us a tool to make the results in TAAA repair comparable of different therapeutic methods or the same therapeutic approach of different groups.

27.

Autogenous Brachial-Brachial Fistula for Vein Access: One Year Clinical Outcome and Comparison with Arteriovenous Grafts

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Introduction Aim of the study	Two-stage autogenous brachial vein-brachial artery access (ABBA) has been proposed as an option in the absence of superficial vein suitable for the creation of conventional haemodialysis fistulae. We report our experience with the use of ABBA in a consecutive series of patients treated in a single centre and compare this with our contemporaneous experience of prosthetic arteriovenous grafts (AVGs).
Materials/ Methods	Between May 2007 and December 2008, 48 consecutive patients out of 363 total vascular access cases, who lacked adequate superficial veins for conventional access were treated in our institution. Seventeen had a brachial vein of diameter >2.5 mm and underwent ABBA. Thirty-one with poor brachial veins were scheduled for AVGs. Patency was compared using Kaplan-Meier survival analysis.
Results	Of the 17 ABBA patients, 12 (71%) experienced at least one complication. In addition, 10 (59%) developed moderate to severe fistula-related stenoses. Thirteen (42%) of the AVGs patients experienced at least one complication, of which four (13%) had a wound infection and 14 (45%) developed moderate to severe graft-related stenoses. The median time to cannulation of the fistulae was 8 weeks following ABBA and 4 weeks after AVG. The functional patency rate was 47.1% at twelve months in the ABBA group and 64.5% in the AVGs group (p=n.s., log rank test, p=.222).
Conclusions	ABBA was characterized by a high incidence of complications and a long maturation period. Despite close monitoring and a high rate of secondary intervention, the functional patency was similar to the AVGs. On the basis of these data, we now use prosthetic grafts for patients who lack superficial veins for conventional autologous haemodialysis access. While this strategy may have similar patency and revision rates, and could be accompanied by more infective complications, its advantages are the early use of the access for dialysis, and that similar outcomes are achieved by a one-stage procedure.

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Anti-platelet Therapy Exerts Beneficial Effects on Carotid Atherosclerotic Plaque Composition; a Determinant of Peri-operative Outcome and Local Restenosis
 W Peeters, G Pasterkamp, DPV de Kleijn, JPPM de Vries, FL Moll
 Dept of Vascular Surgery, University Medical Center Utrecht, The Netherlands

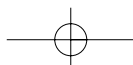
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Introduction Aim of the study	Anti-platelet therapy (APT) exerts beneficial effects on peri-operative and post-operative mortality and morbidity in patients who undergo carotid surgery. Inflammation within the plaque is the main feature determining plaque vulnerability and local restenosis. Besides the primary inhibitory effect of platelet activity, anti-inflammatory properties of APT have been described. However it is unclear if APT affects the inflammatory plaque composition and if dual APT is more opportune. This study compares the effects of single preoperative APT with a combination on atherosclerotic plaque composition.
Materials/ Methods	Atherosclerotic plaques from 103 patients were harvested during carotid endarterectomy. Patients were stratified regarding pre-operative APT; 1) no APT, 2) Aspirin, 3), Aspirin and Clopidogrel. Plaques were assessed for macrophage infiltration, smooth-muscle-cell (SMC) content and lipid-core as measures for plaque stability. Biomarker levels of IL4, IL6, IL8, IL10 were determined as measures of the inflammatory status at protein level. Groups were age and gender matched and individual data regarding cardiovascular risk factors and medication use were analyzed to exclude confounding.
Results	Pre-operative APT is associated with reduced macrophage ($p < 0.001$) and increased SMC ($p = 0.03$) infiltration. The combination of Aspirin and Clopidogrel had additional effects on macrophage and SMC infiltration compared to Aspirin. On biomarker level, increased levels of anti-inflammatory IL4 ($p = 0.02$) and IL10 were observed in the combination group compared to Aspirin. Inflammatory IL8 levels showed an evident tendency of reduction in the Aspirin group and even more in the combination group.
Conclusions	The combination of Aspirin and Clopidogrel has additional plaque stabilizing effects compared to single Aspirin treatment. The outcome of this study may explain the beneficial effects of dual APT on peri-operative morbidity. In addition, since inflammation is associated with local restenosis, the present study provides new opportunities to investigate effects of APT on local restenosis and clinical outcome following carotid surgery in longitudinal trials.

POSTERS

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29.

Physical and Chemical Evaluation of Explanted Vascular Prostheses with Longitudinal Ruptures: How to Improve in vivo Polyester Stability?

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GEPROVAS, Dept of Vascular Surgery, Strasbourg, and Laboratoire de Physique et
Mécanique Textiles, ENSISA, Mulhouse, France

Introduction	We previously showed that longitudinal ruptures on vascular prostheses
Aim of the study	occurred in specific areas of the knit ¹ and that they were related to their manufacturing process ² . In the present study we investigated the physical and chemical degradation of the polymer, polyethylene terephthalate (PET), of these explanted prostheses.
Materials/ Methods	<p>We studied explants where enough fabric was available to complete our protocol (6 of the 20 explants). They were all Cooley Double Velour prostheses with a mean duration of implantation of 202 months (range 156 to 240). We performed:</p> <ol style="list-style-type: none"> 1. Filament dynamometry (FD); 2. Modulated Differential Scanning Calorimetry (mDSC); 3. Density gradient column (DGC); 4. X-rays diffraction (X-rD); 5. Infrared Micro Spectroscopy (IMS); 6. Nuclear magnetic resonance (NMRH).
Results	FD demonstrated a high level of degradation of filaments mechanical properties (tenacity, elongation at rupture, modulus...). mDSC, X-rD, DGC, and IMS showed a 10% increased PET cristalinity related to the development of microcristalites in the amorphous areas of PET chains (Figure 1). NMRH showed a 50% mean decrease of PET macromolecular mass (Figure 2), this decrease being higher on texturized filaments than on flat ones, and that the macromolecular chain included ether groups that were more prone to degradation through in vivo oxidation.
Conclusions	<p>This study confirmed the high level of polymer degradation in prostheses that have demonstrated longitudinal ruptures. New generations of vascular fabrics, whose some have recently found to also demonstrate ruptures, should require a more controlled manufacturing process, and the use of a PET specifically synthesized for medical applications with less structural anomalies in order to be less prone to in vivo oxidation.</p> <ol style="list-style-type: none"> 1. Chakfé N, et al. Longitudinal ruptures of polyester knitted vascular prostheses. <i>J Vasc Surg</i> 2001; 33: 1015-1021. 2. Diéval F. Mechanisms of longitudinal rupture of knitted polyester vascular prostheses: in vitro analysis of virgin prostheses. <i>Eur J Vasc Endovasc Surg</i> 2003 ; 26 : 429-436

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CKLF1 is Up Regulated in Human Atherosclerotic Plaques and it has Increasing Effects on the Proliferation and Migration of Human Arterial Smooth Muscle Cells

C Shen

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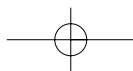
30.

Introduction	To investigate chemokine-like factor 1 (CKLF1) expression in human atherosclerotic plaques and normal artery walls as well as its effects on chemotaxis and proliferation in human artery smooth muscle cells (ASMCs).
Aim of the study	
Materials/Methods	Real-time quantitative PCR and immunohistochemistry were used to detect CKLF1 mRNA and protein, respectively, in atherosclerotic and normal artery specimens. The recombinant eukaryotic expression vectors pEGFP-N1-CKLF1 (test group) and pEGFP-N1 (control group) were transiently transfected into 293T cells. The supernatants were harvested 72 h after transfection to analyze bioactivity. The effects of CKLF1 on ASMCs migration and proliferation were assayed by chemotaxis experiments and methyl thiazolyl tetrazolium (MTT) assays.
Results	Endothelial cells (ECs), ASMCs, and macrophages were positive for CKLF1 expression in atherosclerotic plaques. The transcription of CKLF1 mRNA in atherosclerotic plaques is up-regulated significantly (RQMedian=132.17, $P<0.05$) compared to normal artery walls (RQMedian=2.44). Accordingly, the positive expression rate of CKLF1 protein in ASMCs and ECs of atherosclerotic plaques is also up-regulated significantly compared to ASMCs and ECs in normal artery walls (100% vs 80%, $P<0.05$). Moreover, after 48 h and 72 h in culture, the OD detected by MTT assays in the test group was significantly higher than that of in the control group (0.3756 ± 0.080 vs. 0.3934 ± 0.092 , $P<0.01$; 0.4801 ± 0.0237 vs. 0.4241 ± 0.0114 , $P<0.01$). Furthermore, ASMCs number migrated from the test and control groups diluted by 100% and 10% supernatants have a statistical significance (114 ± 4 vs. 41 ± 4 $P<0.05$; 74 ± 4 vs. 34 ± 3 $P<0.01$), while treated by pertussis toxin (PTX) of $10\mu\text{g/L}$ the chemotactic effects on ASMCs can be inhibited (37 ± 4 vs. 34 ± 3 $P>0.05$).
Conclusions	CKLF1 mRNA and protein expression is significantly up-regulated in the ASMCs and ECs of atherosclerotic plaques compared with those cells in normal artery walls. CKLF1 has increasing effects on the proliferation and migration of ASMCs, which suggests that CKLF1 may play an important role in the process of inflammatory responses of atherogenesis.

POSTERS

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131.



31.

Imaging Mass Spectrometry Revealed Unique Lipids Distribution in Primary Varicose Vein
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Introduction	Obesity and pregnancy are associated with occurrence of varicose vein (VV), in which abnormal lipid metabolism is considered to be involved in its pathogenesis. To gain insights of the pathogenesis in developing VV, we utilized a novel technique of imaging mass spectrometry in analyzing the distribution of lipid molecules in VV tissue.
Aim of the study	
Materials/ Methods	VV tissue was obtained from seven VV patients who underwent great saphenous vein stripping. As control vein samples, segmental vein tissue was harvested from five patients with peripheral artery occlusive disease who underwent infrainguinal bypass with reversed saphenous vein graft. The stored tissue was analyzed later with matrix-assisted laser desorption/ionization imaging mass spectrometry (MALDI-IMS), which can distinguish different unspecific molecular species and enable the distribution of those molecules on the tissue surface.
Results	Lipid analysis with MALDI-IMS identified ubiquitous distribution of phosphatidylcholine(PC) and sphingomyelin(SM) in both control and VV tissue. On the other hand, the ratio of ion intensity in adventitia to that in intima (A / I ratio) of triglyceride (TG) in varicose was 2.3, or TG was localized primarily in adventitia in VV tissue, while TG accumulation was inconspicuous in control tissue. (Fig.1) Quantitative analysis of TG accumulation in VV tissue, which was measured by a colorimetric method, identified that VV contained three fold higher amount of TG than control tissue (Fig.2).
Conclusions	MALDI-IMS identified the distribution of various lipid molecules in both normal vein and VV. Increased accumulation of TG in VV adventitia suggested that abnormal lipid metabolism may contribute to develop VV.

132.

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The Positive Effect of Immunosuppression on Adaptation of Venous Allografts to Arterialization in Rats

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Introduction	The need and beneficence of immunosuppression in patients after peripheral allovenous reconstructions is controversial. Therefore, we used a rat model to study the process of adaptation of allovenous veins to arterialization in conditions of immunosuppression.
Aim of the study	
Materials/Methods	Brown-Norway (BN) iliolumbar veins were allotransplanted into abdominal aorta of Lewis (LEW) rats (group C). FK 506 in daily dose of 0.2 mg/kg was given intramuscularly. Isogenic (LEW to LEW) transplanted rats with (group Al) or without immunosuppression (group A) and allotransplanted (BN to LEW) rats with no immunosuppression (group B) served as controls. Grafts were harvested and prepared for light microscopic evaluation 30 days after transplantation. The presence of endothelial cells, the intensity of intimal proliferation, and the degree of CD4+ and CD8+ cellular adventitial infiltration were determined.
Results	The mean FK 506 blood level was 5.57 ± 0.96 ng/ml and did not differ between groups C and Al. The thickness of intima in studied group C (15.0 ± 8.0 μ m) did not differ from control group A (13.0 ± 7.0 μ m). Intimal proliferation in group B was statistically lower (2.0 ± 1.0 μ m) when compared to all previous groups. The degree of CD8+ cellular adventitial infiltration in group C (1.8 ± 2.6) was comparable to both group A (0.8 ± 1.7) and group Al (0.9 ± 1.3). However, CD4+ infiltration was suppressed dramatically by FK 506 only in group C (5.8 ± 4.6) when compared to both isogenic groups (group A 12.5 ± 7.7 , group Al 11.9 ± 5.0). The degree of CD4+ and CD8+ cellular infiltration in allogeneic group B was significantly higher (42.7 ± 20.0 ; 24.1 ± 14.0) when compared to all others groups. This infiltration resulted into destruction of venous wall in this allogeneic group with no immunosuppression.
Conclusions	Immunosuppressive therapy is necessary for the adaptation of venous allografts to arterialization in rats. Supported by IGA grant NR/9371-3/2007.

33.

Supervised Exercise Training Reduces Plasma levels of the Endothelial Inflammatory Markers E-selectin and ICAM-1 in Patients with Peripheral Arterial Disease
 T Saetre (1), E Enoksen (2), T Lyberg (3), E Stranden (1,4), JJ Jørgensen (1,4), JO Sundhagen (1), J Hisdal (1)
 Oslo Vascular Centre, Oslo University Hospital, Aker (1), The Norwegian School of Sport Sciences, Oslo (2), Center for Clinical Research, Oslo University Hospital, Ullevål (3), University of Oslo (4), Norway

Introduction Aim of the study	Elevated plasma levels of general inflammatory markers (e.g. hsCRP and cytokines), as well as specific endothelium-derived inflammatory markers, have been reported in patients with peripheral arterial disease (PAD). There is evidence that exercise training (ET) reduces levels of general inflammatory markers, but the effect of ET on specific endothelium-derived inflammatory markers in patients with PAD is not known. This study was therefore designed to elucidate the effect of supervised ET on circulating levels of endothelial adhesion molecules (E-selectin, ICAM-1 and VCAM-1). We hypothesize that supervised ET is correlated to improved endothelial function as reflected in reduced levels of endothelium-derived adhesion molecules.
Materials/ Methods	Patients (n=29, age 49 to 76 years) with diagnosed PAD, ankle/brachial index <0.9 and maximum walking distance 306 (267-566) m (median (95% CI)), were included. Before and after 8 weeks of supervised ET, a standardized treadmill exercise test was used to determine walking distance, and blood was sampled and analyzed for E-selectin, ICAM-1 and VCAM-1 with commercial ELISA methods. Wilcoxon signed rank test was used to test for differences, p<0.05 was considered significant. Values are given as median (95% CI).
Results	After 8 weeks of supervised ET, pain free and maximum walking distances were significantly increased. Plasma levels of E-selectin and ICAM-1 were significantly reduced. E-selectin was reduced from 45.5 (42.7-63.1) ng/mL to 40.4 (38.4-57.8) ng/mL, and ICAM-1 from 342.0 (311.2-396.2) ng/mL to 298.0 (294.5-374.8) ng/mL. There was no change in VCAM-1 levels.
Conclusions	To our knowledge, this is the first study to demonstrate that the specific endothelium-derived inflammatory markers E-selectin and ICAM-1 are reduced by supervised ET in patients with PAD. E-selectin and ICAM-1 may be predictive risk factors in cardiovascular disease. The reduction in E-selectin and ICAM-1 did not correlate to increased walking distance, indicating different mechanisms for beneficial effects caused by ET.

134.

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Modified Ankle Brachial Index Detects Increased Number of Patients at Risk in Finnish Primary Health Care – ATTAC Study
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 Tampere University Hospital, Turku University Hospital, Etelä-Karjala Central Hospital and Helsinki University Hospital, Finland

Introduction	<p>Aim of the study Ankle brachial index (ABI) is an independent predictor of cardiovascular disease (CAVD) morbidity and mortality. In the primary healthcare, peripheral arterial disease (PAD) is underdiagnosed and undertreated. There exists several different definitions for PAD (ABI<0.9, ABI<0.95). In addition, a modified ABI (ABI_{mod}) calculated using the lowest ankle pressure has been reported to improve the identification of patients at risk. Furthermore, subjects with ABI>1.4 are at increased risk for CAVD mortality and morbidity. In this study, the association of different ABI definitions with cardiovascular burden and medical treatment was assessed in Finnish primary care units.</p>
Materials/Methods	<p>One third of Finnish health centers (n=100) were randomised and trained for ABI measurement. Patients were recruited using inclusion criteria: age 50–69 and >1 cardiovascular risk factor or age >70 years or calf pain at exercise. A total of 810 patients were recruited.</p>
Results	<p>Demographics: current smokers 41.6%, diabetes 38.7%, hypertension 75.0%, dyslipidemia 68.3%, and clinical PAD 8.4%. DM medication was used by 32.3%, antihypertensive medication by 75.0%, medication for dyslipidemia by 68.3%, aspirin (ASA) 53.9%, dipyridamole 4.3%, clopidogrel 1.7%, warfarin 10.5% and LMWH 0.2%.</p> <p>ABI<0.9, ABI<0.95 and ABI_{mod}<0.9 and ABI>1.4 was detected in 21.5%, 29.5%, 44.2% and 8.4% of the patients, respectively. ABI_{mod}<0.9 identified the highest number of patients at risk, i.e. 55.7% of patients with coronary artery disease (CAD), 61.8% of patients with cerebrovascular disease (CVD) and 85.5% of patients with clinical PAD and 58.5% of patients with any clinical artery disease (CAD/CVD/PAD). Usage of ABI<0.9 instead of ABI<0.95 resulted in exclusion of 7.6%, 11.2%, 2.9%, and 8.5% of patients with CAD, CVD, clinical PAD and CAD/CVD/PAD, respectively. For detection of CAD, in receiver observer characteristics analysis (ROC) the area under the curve (AUC) was 0.42–0.47 for all ABI criteria. For CVD detection the AUC was 0.40–0.47 for all ABI criteria. For clinical PAD detection the AUC was 0.24, 0.27, 0.24 and 0.46, respectively. For detection of CAD/CVD/PAD the AUC was 0.39 for all ABI criteria except 0.46 for ABI>1.4. Presence of PAD by any of the criteria did not have any association with the use of ASA (55.7%, 56.1% and 55.0%, respectively) or clopidogrel (4.0%; 2.9%; 2.8%, respectively).</p>
Conclusions	<p>In primary care PAD is highly prevalent modified ABI calculation detects increased number of patients at risk. The patients at risk are undertreated with respect to use of antithrombotic medication.</p>

35.

Serum Levels of Ischemia – Modified Albumin in Healthy Volunteers after Exercise – Induced Calf Muscle Ischemia**J Falkensammer**

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Introduction	To investigate the applicability of the serum marker ischemia-modified albumin (IMA) for the diagnosis of skeletal muscle ischemia, we investigated IMA changes, as measured by the albumin cobalt-binding test, in a group of healthy volunteers after standardized exercise-induced calf muscle ischemia.
Aim of the study	
Materials/ Methods	12 healthy volunteers underwent standardized exercise on a plantar flexion pedal. Ischemic conditions were achieved by inflating a blood pressure cuff on the upper leg at incremental pressures of 0, 60, 90, 120 and 150 mmHg, respectively. Calf muscle ischemia was objectified by synchronous phosphorous-31 magnetic resonance spectroscopy, measuring intracellular concentrations of phosphocreatine (PCr) and inorganic phosphate (Pi). In addition, IMA, serum albumin and lactate were measured at baseline and at 5, 10, 30, 360 and 720 minutes after cuff release.
Results	Magnetic resonance spectroscopy proved calf muscle ischemia in all participants upon exercise and cuff inflation. Circulating IMA concentrations increased significantly after cuff release ($p = 0.03$) and returned to baseline within 30 minutes. While we found a significant negative correlation with albumin there was no association of IMA levels with lactate or the intracellular levels of PCr or Pi in the samples obtained at baseline and post-ischemia.
Conclusions	IMA may represent a clinical marker also for skeletal muscle ischemia. Lack of specificity as well as the short half-life of the parameter necessitate examination in a highly standardized setting.

136.

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Bypass to the Ankle and Foot in Patients with Tibial Arteries Disease Unfit for Endovascular Treatment. Long-term Results and Factors Influencing Outcome
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Introduction

Aim of the study

Endovascular therapy is the treatment of choice for critical limb ischemia (CLI) and tibial arteries focal disease with restorable run off; pedal bypass (PB) is indicated only in patients unfit for endovascular procedures with foot or ankle arteries suitable for surgery. The aim of this study was to evaluate clinical outcome of PB in the era of endovascular treatment of tibial arteries disease (TAD) and to define the prognostic factors correlated to limb salvage (LS), primary patency (PP) and patient survival (PS).

**Materials/
Methods**

Between February 2000 and November 2008, patients with CLI and TAD were collected prospectively in a dedicated data-base including demographics, Fontaine's stage, Texas University Wound Classification (TUC) of ulcers, coexisting medical conditions, tibial arteries disease, techniques of foot revascularization. PB was performed in patients with tibial arteries occlusion longer than 4 cm or focal occlusion with poor run off; surgical factors were collected prospectively. Clinical and duplex-ultrasound evaluation were performed at discharge, 1, 3, 6 months after surgical revascularization and every 6 months. LS, PP and PS rates were assessed with the Kaplan-Meier method; factors influencing the outcomes were sought by multivariate Cox proportional hazards model analysis.

Results

410 revascularizations were performed in patients with CLI and TAD; PB in 153 patients (mean age: 69.3±10.6, male/female: 117/36, diabetes mellitus: 75.2%, hyperlipidemia: 54.9%, hypertension: 87.6%, renal disease: 32.7%, coronary arteries disease: 51.6%, Fontaine stage IV: 96.1%, TUC grade III: 65.4%, TUC stage D: 51%). All autologous grafts in 96.7% (non-reversed saphenous vein: 74.5%, reversed: 7.2%, composite vein graft: 12.4%, arm's veins: 2.6%). Limb salvage and patients survival at 1 month were respectively 88.2% and 97.1%. Mean follow up was 23 months. Kaplan-Meier estimations at 12 and 36 months: LS 76.7% and 70.9%, PP 62.3% and 52.9%, PS 91.5% and 74.6%. LS was negatively associated with infected ulcers (HR=2.921 [95%CI=1.342-6.361], p=0.007), female gender (HR=2.439 [95%CI=1.226-4.855], p=0.011), composite vein graft (HR=2.696 [95%CI=1.177-6.175], p=0.019) and homograft (HR=3.655 [95%CI=1.083-12.338], p=0.037). PP was negatively associated with hyperlipidemia (HR=2.120 [95%CI=1.191-3.773], p=0.011), female gender (HR=2.497 [95%CI=1.442-4.383], p=0.001), composite vein graft (HR=2.930 [95%CI=1.406-6.107], p=0.004) and homograft (HR=2.762 [95%CI=1.040-7.333], p=0.041); instead it is positively related with hypertension (HR=3.446 [95%CI=1.729-6.867], p=0.000). PS was negatively correlated with renal disease (HR=3.227 [95%CI=1.412-7.376], p=0.005).

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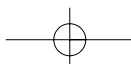
36.

Conclusions

Bypass to the ankle and foot may be a reasonable first-line treatment for CLI patients with TAD unfit for endovascular procedures (diffuse tibial arteries disease and poor run off);female gender, hyperlipidemia, use of composite vein or alternative grafts, foot infection and renal disease are associated with significantly worse outcome.

138.

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Poor Balance and Physical Function among Elderly Claudicants – is Exercise the Answer?
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Introduction	Objective balance assessment using the Sensory Organization Test (SOT) offers the opportunity to identify and intervene in patients with balance impairment, a known risk factor for falls. The aim of this pilot study was to assess the effect of a standard supervised exercise programme on elderly claudicants' balance and physical function.
Aim of the study	
Materials/ Methods	Seventy four claudicants underwent objective balance assessment using SOT. Of these, 12 claudicants (9 men), median age of 72 (IQR 68.25-73.75) years, attended a 12 week supervised exercised programme (SEP). SEP conducted three times a week, consisted of walking interspersed with lower limb strength training circuits. SOT was repeated post-SEP and further outcome measures included, physical function assessments, generic (SF-36) and disease-specific (Kings' VascuQol) quality of life questionnaires and a fear of falling assessment (Activities-specific Balance Confidence Scale, ABC).
Results	The overall prevalence of abnormal balance among 74 claudicants tested was 45% (33 patients) using the SOT score. Prior to SEP, 6/12 claudicants demonstrated abnormal balance. Following SEP attendance half of those with abnormal scores improved their balance by enough to become within the normal range. A trend towards improved scores occurred in all physical function tests, with significant improvements noted in the Timed Up and Go test (median 8.75 seconds pre-SEP, versus 7.94 seconds post-SEP, P=0.05, Wilcoxon Signed Ranks Test), and the 4 metre walking test at usual speed (median 3.99 seconds pre-SEP versus 3.41 seconds post, P=0.002). Improved quality of life scores were also noted (total VascuQol score, P=0.034, SF36 Physical Summary score, P=0.021).
Conclusions	Improvements in both balance and physical function can be achieved by a standard supervised exercise programme for claudicants. Future work should aim to determine whether a specific tailored programme with both strength and balance training may result in further improvements with continued symptomatic gains in terms of walking distance and quality of life.

Risk Factors of Premature Atherosclerosis

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- Introduction**
Aim of the study
- Premature atherosclerosis is characterized by rapid progressive, and an aggressive course producing early disability or death. The cause and incidence of this form atherosclerosis is not precisely known.
- Materials/**
Methods
- Study population consisted of 112 men with low-limbs atherosclerosis. They were subdivided according to age into three groups: I group included 31 patients younger than 44 years; II (n=43) and III (n=38) groups consisted of patients aged 45–60 years and more than 60 years, respectively. The analysis was performed according to risk factors (smoking, hypertension and diabetes mellitus) and presence of concomitant diseases. The concentration of plasma total homocysteine H(e), C-reactive protein (CRP), leukocyte count, fibrinogen, von Willebrand factor (vWF), factor VIII and antithrombin III (AT-III) were measured. We used phase contrast microscopy to assess platelet activation (shape change and number of platelets in aggregates).
- Results**
- The higher rate of the younger patients were smokers (96% versus 75% in II group and 71% in III group). The H(e) levels in the younger group were $10, 7 \pm 4, 6$ (mean \pm SD); in I and II groups the levels of H(e) were $15, 1 \pm 3, 4$ and $16, 6 \pm 3, 1$ nmol/ml, respectively. The CRP-concentrations and leukocyte count ($6, 7 \pm 2, 0$ mg/l and $9,8 \cdot 10^9 \pm 2,8 \cdot 10^9/l$, respectively) were higher in young patients than in older groups (leukocyte count were $6, 5 \cdot 10^9/l$ and $5 \cdot 10^9/l$ in II and III groups, respectively and mean CRP-concentration in II and III groups together were $3, 1 \pm 1, 2$ mg/l). The sum of active fractions of platelets (SAFP) and percent of platelets involved in aggregates were increased in patients with peripheral atherosclerosis independent of age (SAFP in I group were $28, 5 \pm 4, 5$ %, in II group $30, 3 \pm 3, 9$ % and in group of patient older than 60 years – $29, 3 \pm 6, 1$ %. SAFP level of control group were $18, 4 \pm 5, 3$ %). Therefore platelets activity was increase in all studied patient with PAD. We have not found the statistically significant differences in AT-III and fibrinogen concentration between groups. Activity of vWF and factor VIII were increased in patient with PAD, but the elevation were more marked in I group (vWF and VIII in group of patient younger than 44 years were $186, 1 \pm 23, 2$ % and $162, 7 \pm 2, 1$ %, respectively; in second group – $144, 1 \pm 19, 7$ % and $141, 7 \pm 17, 3$ %, respectively, in III group – $152, 2 \pm 24, 5$ % and $150, 2 \pm 18, 2$ %, respectively and in control group vWF were $131, 5 \pm 22, 6$ %, VIII – $116, 5 \pm 14, 5$ %).
- Conclusions**
- Our findings strongly suggest the significant role of inflammation, hypercoagulable state and smoking in pathogenesis of peripheral atherosclerosis disease in young adults.



Comparing the Endothelialisation of Synthetic and Biological Vascular Grafts under Static and Shear Stress

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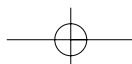
39.

Introduction	
Aim of the study	The replacement of small-diameter arteries with vascular prostheses often leads to graft failure due to the thrombogenic nature of the internal graft surface. To improve patency rates, the concept of graft endothelialisation is being investigated to create a thromboresistant barrier between the circulating blood and the graft wall. The objective of this study was to compare the endothelialisation of existing synthetic grafts with emerging biological vascular graft materials.
Materials/Methods	Human Umbilical Venous Endothelial cells (HUVEC) were seeded onto the luminal surface of 6mm acellular extracellular matrix (ECM) scaffolds of the porcine urinary bladder wall (UBM) and porcine small intestine submucosa (SIS) and compared with synthetic grafts of woven polyethylene terephthalate (Dacron) and polytetrafluoroethylene (ePTFE). The constructs were then analysed under static and shear stress conditions (25 dyn/cm ²). Cellular Viability and mitochondrial activity was measuring using live-dead immunofluorescence assay and MTS assay respectively. Cellular and substrate morphology was analysed using scanning electron and confocal microscopy. Endothelial cell phenotype was verified by immunofluorescence staining of Von Willbrand factor (vWF).
Results	Cellular seeding efficacies and resistance to shear stress on both biological grafts were statistically superior to synthetic grafts regardless of incubation time or cell density ($p < 0.05$). HUVEC's researched morphological maturity on biological grafts faster than their synthetic analogues. Cells grew to single layer confluence on both biological grafts by day 9, cells grown on synthetic grafts exhibited significantly slower proliferation rates and failed to reach confluency during the study. Immunofluorescent analysis verified the presence of von Willebrand factor on all substrates, confirming the endothelial character of the cells.
Conclusions	ECM bioscaffolds offer superior biocompatibility properties and resistance to sheer stress compared to synthetic analogues. These properties make ECM grafts promising substrates in the field of vascular graft tissue engineering.

POSTERS

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141.



40.

Interobserver Agreement on the Femoropopliteal TASC-Classification is Impossible to Achieve in Practice

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Introduction Aim of the study	TASC-classification was developed to standardize communication in clinical practice and in scientific reports. It is widely used in treatment guidelines and in publications reporting results of endovascular procedures. However, in clinical setting the present classification causes confusion at times. The aim of the study is to evaluate the reproducibility of femoropopliteal TASC-classification and analyze the influence of educational intervention to interobserver agreement.
Materials/ Methods	Study material comprised 200 consecutive angiograms on femoropopliteal arterial lesions treated by endovascular procedure during 2005–2006. In the first stage 2 senior vascular surgeons, 2 vascular surgical trainees, 2 angioradiologists and 1 angioradiologists in training evaluated the first 100 angiograms independently aided by TASC-guide available. Thereafter, the intervention included discussion of 25 most problematic cases in a panel of 22 surgeons, at first, and by the seven investigators, secondly, to find agreement on TASC-classification and to clarify the principles. In the second stage, 100 remaining cases we evaluated independently. Brennan and Prediger's free-marginal kappa was used to calculate a change-adjusted measure of agreement.
Results	Interobserver agreement was relatively low in the first evaluation (Kappa between all observers 0.32, range between 2 observers 0.17–0.58). Intervention increased the agreement to the moderate level (Kappa 0.49;0.33–0.64), but still remained below the adequate interrater agreement (0.70). Total agreement between all 7 investigators was reached only in 3% before and in 19% after the intervention. Agreement between two observers varied between 38–69%(mean 49%) before the intervention and between 51–73%(mean 61%) thereafter. A clear finding was that few lesion types do not fit to any of the TASC classes. Also, the guidelines of the classification in the Second Transatlantic Consensus Document for the Treatment of Peripheral Arterial Disease are controversial.
Conclusions	Possibilities to individual interpretations with the current guidelines for the femoropopliteal TASC-classification are high and the common use of this classification could be questioned.

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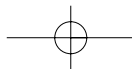
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Venous Ulcers: Who will not Heal? Validating a Score that Predicts Healing for C6 Patients
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41.

Introduction Aim of the study	Venous leg ulceration is estimated to affect from 1 to 2% of the population. It is associated with a significant reduction in quality of life and cost for the health system. The authors create and validate a scoring system that stratifies risk of non-healing at 24 weeks. The main objective is to identify a subgroup of patients who will neither heal nor show significant improvement (defined as \geq 50% healed area) with conventional treatment.
Materials/ Methods	Risk factors integrated in the score were: time of evolution, age, ulcer area and deep venous involvement. The score was then applied in 137 patients (109 retrospectively and 28 prospectively). All patients were followed-up for at least 24 weeks and treated according to standard institutional protocol. Association between risk-factors and non-healing was studied. A receiver operator characteristic (ROC) curve was used to validate the score. A Kappa measure of agreement defined a cut-off point for unfavorable outcome.
Results	Healing or significant improvement was observed in 75.9% of patients. Statistical significance was reached for all the proposed risk factors when applied to this specific population. The score was found to have high discriminative power (area under the curve = 0,905, $p < 0,001$) as a predictor of ulcer healing at 24 weeks. A cut-off point of 4 was suggested.
Conclusions	The proposed scoring system efficiently predicts success of compression treatment for venous leg ulcers. The identification of a subgroup of patients who will show little or no benefit may spare the patient from unnecessary long-lasting treatment and justify early referral to specialized units in which alternative treatments could be offered. Furthermore, the score is user-friendly and requires no special skills, facilitating use in busy departments and primary care facilities.



42.

Endovenous Laser Therapy in the Treatment of Recurrent Varicose Veins – a Safe and Effective Option

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Introduction	Endovenous laser therapy (EVL) is an increasingly popular method of treating primary lower limb varicose veins and is a less invasive alternative to traditional open surgery. Open surgery may however prove difficult in the setting of recurrent veins and the multitude of potential groin complications under these circumstances is well recognized due to the presence of groin scarring and revascularization. In this backdrop we analysed the feasibility of performing EVLT for recurrent varicose veins at our centre along with interim follow up results.
Aim of the study	
Materials/ Methods	Data was prospectively collected from 2007 - 2009 over a 15 month period of consecutive patients who underwent EVLT for recurrent varicose veins in our department.
Results	A total of 40 consecutive procedures were performed in 37 patients during the study period. Patient age ranged from 33-73 (median 55) years. All procedures were performed under local anaesthesia. Thirty six patients were treated for groin recurrences whereas one underwent saphenopopliteal laser ablation. Vein lengths treated with laser ranged from 11-50 (median 26) cms. The median amount energy utilised for venous ablation was 80.8 (range 73.1-89.4) J/cm. No complications were encountered in any patients. Follow up periods ranged from 2- 10 months. No recurrences were detected on clinical examination or duplex evaluation.
Conclusions	EVL is not only an effective option for recurrent varicose veins but has a very good safety profile. Recurrence rates are minimal and our interim results support this.

144.

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Estradiol Levels in Varicose Vein Blood of Patients With and Without Pelvic Vein Incompetence (PVI): Diagnostic Implications

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Introduction Aim of the study	To evaluate if there is a difference in the estradiol levels of varicose vein blood taken at the lower limb in patients with and without PVI.
Materials/ Methods	Women of child bearing age with symptomatic primary or recurrent varicosity of the greater saphenous vein (GSV) were prospectively included in a study (group A) and a control group (group B) depending on the presence of PVI, which was proved by phlebographic examination. Blood samples were collected at the thigh and at the elbow in each patient. Estradiol levels were determined by electroluminescence.
Results	Between January and December 2007, 40 women fulfilled the inclusion criteria. 19 of them showed phlebographic evidence of PVI (group A), while 21 were included in the control group (group B). Phlebography revealed an incompetent ovarian vein in 14 (73,6%) patients of the group A, dilated plexi in 12 (63,1%) and an incompetent internal iliac vein in 6 cases (31,5%). In group A the median estradiol level in varicose vein blood of the lower limb was 120,7 pg/ml (range 12,4-4300), while in group B the median level was 74,8 pg/ml (range 9,4-1177). At the upper extremity, group A patients had a median level of 77,7 pg/ml (range 14,8-121,4) and group B patients of 67,5 pg/ml (range 12,8-567,7). The ratio lower limb/upper extremity was significantly higher (p 0.002) in patients of group A (median 1,9 - range 0,7-32,9) than in those of group B (median 1,1 range 0,8-12,7). A threshold ratio of 1,4 showed the highest combined sensitivity and specificity in differentiating patients with PVI from those without.
Conclusions	In a small population of patients with GSV varicosity, estradiol levels were significantly higher at the lower limb than at the upper extremity in a subgroup of patients with associated PVI. The possibility to use these findings in daily practice to detect PVI without the costs and risks of phlebography should be evaluated in larger studies with higher number of patients.

44.

Usefulness of the Computed Tomography for Deep Venous Thrombosis of Lower Extremities
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South Korea

Introduction	This study aims to assess the usefulness of indirect computed tomographic venography (CTV) after computed tomographic pulmonary angiography (CTPA) which is intended to detect and treat the patients with deep venous thrombosis.
Aim of the study	
Materials/Methods	Eighty-six patients who were diagnosed deep venous thrombosis (DVT) were enrolled retrospectively. All the patients were performed CTPA & CTV within 24 hours after Doppler ultrasound (US). CTV was compared with Doppler US for diagnosis of DVT. Pulmonary embolism (PE) and other findings, which were detected by CTPA & CTV were analyzed.
Results	Among 86 patients, 83 were detected thrombi by Doppler US. Three patients with negative Doppler US were detected pulmonary embolism by CTPA. CTV did not detect DVT in 11 among 83 patients. Among the 11 patients, 8 were below knee thrombosis, which was not the scan area of CTV. In 2 patients, their Doppler US results could not be guaranteed. One case was false positive of the Doppler US. The results of thrombi level between Doppler US and CTV were roughly concordant. In addition to DVT or PE, 32 new lesions of 27 patients were incidentally detected by CTPA & CTV.
Conclusions	Compared with Doppler US, CTPA & CTV is not inferior to detect the DVT of lower extremities and can also provide us information about incidental disease as well as pulmonary embolism.

146.

please note change of order.

The Impact of Different Concentrations of Sodium Tetradecyl Sulphate (STD) and Initial Balloon Denudation on Endothelial Cell Loss and Tunica Media Injury in a Model of Foam Sclerotherapy (FS)

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Introduction	20-32% of truncal veins recanalise 1-3 years after FS suggesting initial thrombotic occlusion rather than full thickness vein wall injury and permanent ablation which may account for superior outcomes for radiofrequency or endovenous laser therapy. This study examines the extent of vein injury inflicted by STD foam of differing concentrations alone and following balloon endothelial denudation.
Aim of the study	
Materials/ Methods	20 patients (sapheno-femoral and great saphenous (GSV) reflux) undergoing surgery were studied. 1.5cm of proximal GSV served as control segments. The next 1.5cm GSV were also harvested after in-situ balloon denudation (5 passes, 5F Fogarty catheter) in 10 patients and without denudation in 10. These segments were filled with 1% or 3% STD foam for 5 minutes then flushed with autologous blood (STD removal) and fixed in formalin. Sections of these and control segments underwent H&E, elastin and collagen staining. % endothelial cell loss (ECL) and % depth of tunica media injury were determined.
Results	<p>Control samples showed no injury whilst 1 and 3% STD foam caused 86.3% (± 2.65) and 92.2% (± 1.64) ECL ($p < 0.001$) although islands of endothelial cells remained in all sections. STD concentration did not influence ECL ($p = 0.55$). Balloon denudation increased ECL [$p = 0.01$; 1%: 96.9% (± 0.30), 3%: 98.1% (± 0.29); 1% versus 3% $p = 0.07$].</p> <p>Tunica media injury (sub-endothelial smooth muscle vacuolation) was minimal, extending for 8.9% (± 0.5) and 12% (± 2.1) of its depth (1% and 3% respectively, 1% versus 3% $p = 0.61$). This was not enhanced by balloon denudation [1%: 8.7% (± 1.75), 3%: 11.3% (± 1.1); 1% versus 3% $p = 0.26$]. No elastin or collagen disruption occurred.</p>
Conclusions	Persisting endothelial cells and minimal deep injury probably explain the capacity for recanalisation following FS. Although initial balloon denudation increased ECL this did not facilitate tunica media injury. Whether this manoeuvre will enhance the efficacy of FS requires further evaluation. Further, both 1% and 3% STD had similar effects.

please note change of order.

46.

Long-term Results after Transfemoral Venous Thrombectomy for Iliofemoral Deep Venous Thrombosis**B Geier, G Asciutto, B Strohmamm, T Hummel, H Freis, A Mumme**

Dept of Vascular Surgery, St.Josef-Hospital, Ruhr-University Bochum, Germany

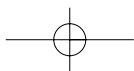
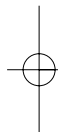
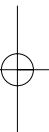
Introduction Aim of the study	In case of deep venous thrombosis (DVT) involving several venous segments and including the pelvic veins conservative therapy has unsatisfying results in terms of preventing postthrombotic syndrome. Transfemoral venous thrombectomy is a therapeutic alternative in selected patients with such extensive DVT.
Materials/ Methods	We performed this procedure in our department between 1998 and 2008 on a total of 83 patients. All patients suffered from an acute DVT involving the pelvic veins.
Results	There was no perioperative mortality, in two cases pulmonary embolism occurred without causing serious symptoms. 90% of reopened venous segments were patent at the time of discharge. During follow-up, 75% of recanalized venous segments were still patent after a mean of 5 years. Furthermore, only 20% of patients developed a mild postthrombotic syndrome; more severe forms causing venous ulceration were not found in any case.
Conclusions	Based on our experience, venous thrombectomy is a safe and effective therapeutic approach to extended iliofemoral deep venous thrombosis and is able to prevent severe postthrombotic syndrome in the long term.

148.

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The European Society for Vascular Surgery has asked the Japanese Society for Vascular Surgery to send us five trainees to present their work at the Oslo Meeting. This is a reciprocal arrangement and five European trainees participated in the Japanese meeting in May this year.





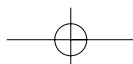
Open Surgical Repair after Thoracic Endovascular Aortic Repair

A Tanaka, A Kitagawa, Y Nomura, HMunakata, M Matsumori, HMinami, T Oka, T Hasegawa, K Okada and Y Okita

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J1.

Introduction	Most of the endoleaks following stent grafting for the thoracic aneurysm can be managed with additional thoracic endovascular aortic repair (TEVAR), but open surgical repair is required in some cases.
Aim of the study	
Materials/ Methods	During the last decade, 11 patients required open surgical repair after TEVAR, whereas 5 patients received re-intervention with TEVAR in our institute. The mean age was 70.9 ± 9.8 years and interval between the initial TEVAR and secondary treatment was 23.8 ± 25.5 months. Open surgery was selected when endoluminal repair was not anatomically available, such as tortuous aorta and short landing zone, or after multiple failure of TEVAR. The indications for open surgery were 5 type I endoleaks, 1 type II endoleaks, 1 type III endoleaks, 2 growings of distal aorta, 1 collapsed graft, and 2 procedure related aortic dissections. Re-intervention with TEVAR was performed for 1 migration, 2 type III endoleaks and 1 type I endoleak. Emergent operation was performed for all collapsed graft and procedure related dissection, and urgent reintervention with TEVAR was performed in 1 migration and 1 type I endoleak. The surgical procedures were 8 graft replacement of the descending aorta, 1 graft replacement of ascending to descending aorta, 2 total arch replacement and 1 graft replacement of thoraco-abdominal aorta. The whole stent graft was extirpated in 9 cases and partially left in 2 cases for either proximal or distal anastomosis.
Results	There were 2 operative deaths. One patient died of multiple organ failure after emergent operation for collapsed graft, and the other patient died of supra-mesenteric artery embolism 2 weeks after urgent TEVAR for type I endoleak. Prolonged ventilation was required in 1 case with open surgery conversion and stroke in 1 redo TEVAR.
Conclusions	Failed TEVAR can be safely corrected with both TEVAR and open surgery when performed electively.



J2.

The Predictive Factors of Ischemic Spinal Cord Injury after Thoracic Endovascular Aneurysm Repair for Descending Thoracic Aortic Aneurysm.

K Koide, T Iwahashi, Y Obitsu, M Matsumoto, N Saiki, N Koizumi, T Shimazak, Y Yokoi, S Kawaguchi and H Shigematsu .

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-
- Introduction** Thoracic endovascular aneurysm repair (TEVAR) is well known as
- Aim of the study** minimally invasive therapy for descending thoracic aortic aneurysm (DAA), and it has made significant advances. However, ischemic spinal cord injury is one of the most miserable complications after treatment for DAA by TEVAR, despite the frequency of paraparesis after TEVAR is lower than open surgery. Therefore, it is raised as a problem that there is no established method for preventing paraparesis during TEVAR. We evaluated our results of TEVAR for DAA, then, considered the predictive factor of ischemic spinal cord injury after TEVAR by using statistical analysis.
- Materials/ Methods** Records of 279 patients who underwent TEVAR for DAA electively from February 1995 to October 2006 at our institution were reviewed (214 men, 65 women; mean age, 72.6 ± 7.6 years). It is recorded that demographics, comorbidities as preoperative factor, and proximal landing zone, total range of stent graft (SG), whether left subclavian artery (Lt.SCA) was occluded or not as intraoperative variables. The original designed SG was used for TEVAR. Univariate analysis and Multivariate analysis were used as statistical analysis. Outcomes were described odds ratios (OR) and 95% confidence intervals (CI). $P < 0.05$ was considered statistically significant.
- Results** Ischemic spinal cord injury occurred in 8 patients (2.9%). There was significant difference in total range of SG (OR 0.58, 95%CI 1.215–2.625, $P=0.0032$) and occlusion of Lt.SCA (OR 2.322, 95%CI 1.789–58.076, $P=0.0089$).
- Conclusions** It was considered that 1) Preventing unnecessary extension of distal landing zone, 2) To keep Lt.SCA blood flow, bypass grafting or transposition of Lt.SCA before placing the stent graft (SG) or fenestration of SG when Lt.SCA is included in proximal landing zone were helpful method to prevent ischemic spinal cord injury after TEVAR for DAA.



The Long-term Results of Endovascular Treatment for Splenic Artery Aneurysms

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13.

Introduction

Aim of the study

Current advances in abdominal imaging techniques have increased a detection rate of Splenic Artery Aneurysms (SAAs). For the treatment of the SAAs, endovascular approach has been highlighted due to its less invasiveness. However, there is still a few data concerning the long-term outcome of the procedure. The purpose of this study was to evaluate outcomes of endovascular treatment for SAAs with particular attention to long-term results.

Materials/ Methods

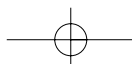
We retrospectively reviewed 38 patients who were diagnosed to have SAAs at The Tokyo University Hospital during past 23 years. In principle, interventions were considered for the patients with SAAs >2 cm in diameter. Nine patients were treated by trans-catheter embolization (TE), eight by open surgical repair (SR). Twenty-one patients were under observation (OB). TE was performed with microcoils displaced distally and proximally to the aneurysm in the afferent artery to isolate the aneurysm.

Results

In TE group, the primary technical success rate was 100%. 30-day mortality or any catheter-related complications were not observed. The mean lengths of hospital stay after TE, except one patient who required another surgery, were shorter than that of SR (8.1 ± 1.0 versus 15.8 ± 1.0 days, $p < 0.001$). During follow-up (29.7 ± 18.0 months), no patient died, and no recurrence of SAAs was observed. In SR group, we succeeded in repairing of all aneurysms without any severe complication, and no aneurysm-related death occurred during follow-up (87.5 ± 19.1 months). In OB group, no aneurysm rupture or increase in aneurysmal size was observed during follow-up (31.0 ± 9.7 months).

Conclusions

TE could provide good early and long-term results, comparable to those obtained by conventional SR. In addition, TE had several advantages associated with its minimal invasiveness. TE by the isolation technique can be the first-line treatment for all SAAs.



Near Infrared lays-induced Fluorescence of ICG to Assess Regional Microcirculation**H Terasaki, Y Inoue, N Sugano, M Jibiki and T Kudo**

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-
- Introduction** It is important to evaluate regional microcirculation to estimate necessity of re-vascularization and to predict ischemic ulcer healing.
- Aim of the study** But recent methods are exceedingly localized, and need to contact lesions, which could not be used for foot with ulcers. Near infrared lays-induced fluorescence of indocyanine green (ICG) dye was used to evaluate viability of skin flap or to detect lymph ducts, which was applied to evaluate regional microcirculation in patients with arterio-sclerosis obliterans (ASO).
- The aim of this study is to assess blood supply of ischemic foot by analysis of the fluorescence resulting from ICG injection.
- Materials/ Methods** There are 48 patients with ASO (Fontaine II: 18, III: 12 and IV: 18). ICG dye (0.1mg/kg) was injected into the brachial vein and recorded ICG-imaging of foot from 20cm distance. The brightness was plotted in time-intensity-curve using recorded images. Ischemic severity was assessed as the duration between uprising point and half value of maximum brightness (T1/2). The brightness of 10 seconds from uprising point (ICG10) was compared with transcutaneous oxygen pressure (TcPO2) in the same small region (n=84).
- Results** T1/2 was significant different between Fontaine (27.1±14.3 sec) and Fontaine (51.4±11.5 sec). A cut-off value (T1/2=40 sec) distinguished them with a sensitivity of 77% and specificity of 94%. ICG10 correlated moderately with TcPO2. A cut-off value (ICG10: 30) predicted critical ischemic limb (TcPO2: 30mmHg) (sensitivity: 85%, specificity: 65%).
- Conclusions** Near infrared lays-induced fluorescence of ICG is useful to evaluate regional microcirculation quantitatively and to estimate the severity of ischemic limbs. This method is less invasive and does not need any contact probes, which could be applied for the patients with ulcers.

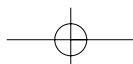


Intraoperative Sac Pressure Measurement During Endovascular Abdominal Aneurysm Repair and Aneurysm Volume Measurement

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15.

Introduction Aim of the study	Evaluation of intraoperative sac pressure measurement and aneurysm volume measurement
Materials/ Methods	Until May 2009, EVAR was performed in 86 patients and sac pressure was measured in 47 patients (Zenith; 31, Excluder; 17) during the procedure. Preoperative aneurysm volume and thrombus volume were measured by a workstation. Their relationships to systemic inflammatory reaction (WBC count, CRP and body temperature) and postoperative shrinkage of a diameter were analyzed.
Results	SPI (systolic sac pressure index) after main-body-deployment was 0.87 ± 0.10 . It was 0.63 ± 0.10 after leg-deployment ($p < 0.01$) and 0.57 ± 0.12 ($p < 0.01$) after balloon dilatation. There was no SPI difference between Zenith and Excluder (0.58 ± 0.13 vs. 0.53 ± 0.07). In type-1 endoleak ($n=7$), SPI dropped from 0.62 ± 0.10 to 0.55 ± 0.10 ($p < 0.01$) by additional fixing procedures. SPI was 0.58 ± 0.12 in type-2-endoleak positive and 0.55 ± 0.12 in type-2-endoleak negative. After 6 months follow-up, diameters decreased in 50% and did not change in 50%. SPI had no difference between AAAs of which diameter decreased and those did not. Aneurysm volume was $158 \pm 68 \text{ cm}^3$, thrombus volume was $70 \pm 42 \text{ cm}^3$, and thrombus ratio was $43 \pm 13\%$. There were no relationships between these three factors and postoperative inflammatory reaction.
Conclusions	Sac pressure measurement was useful in instant hemodynamic evaluation during EVAR procedure, especially in type-1 endoleak. There was no relationship between aneurysm size and inflamm



ESVS Previous Prize Winners

2002

SR Vallabhaneni (best clinical paper)

Title Aortic side branch perfusion alone does not account for high intra-sac pressure after endovascular repair in the absence of graft-related endoleak.
From Regional Vascular Unit, Royal Liverpool University Hospital, UK

OE Teebken (best experimental paper)

Title Tissue-engineered bioprosthetic venous valve: a long term study in sheep.
From Division of Thoracic and Cardiovascular Surgery, Hanover Medical School, Germany

2003

V Pandey (best clinical paper)

Title The European Board of Surgery Qualification in Vascular Surgery (EBSQ-VASC): validity of a pilot assessment in technical skill.
From European Board of Vascular Surgery

A Migdalski (best experimental paper)

Title Selected haemostatic factors in carotid bifurcation plaques of patients undergoing carotid endarterectomy
From Department of Surgery, L Rydygier Medical University, Bydgoszcz, Poland

2004

J Reid (best clinical paper)

Title The Effect of Pravastatin on Intima Media Thickness of the Carotid Artery in Patients with Normal Cholesterol
From Belfast City Hospital, Northern Ireland

J Heckenkamp (best experimental paper)

Title Radiation Therapy Induced Modulation of Wound Healing at Experimental Vein Graft Anastomoses
From University of Cologne, Germany

ESVS Previous Prize Winners

2005

Sarah Franks (First Prize)

Title A Meta-Analysis of 12 years of Endovascular Infra-Renal Aortic Aneurysm Repair

From Leicester Royal Infirmary, Leicester UK

Sandro Lepidi (Second Prize)

Title Hyaluronan-based temporary scaffold for in vivo regeneration of small diameter (2mm) arteries

From Department of Cardiac, Thoracic and Vascular Sciences, University of Padova, Padova Italy

2006

Bart Muhs (First Prize)

Title Dynamic Cine-CT Angiography for the Evaluation of the Thoracic Aorta; Insight in Dynamic Changes With Implications for Thoracic Endograft Treatment.

From Cooperation between The New York University, USA and University of Utrecht, The Netherlands

Tiffany Hassen (Second Prize)

Title Pre-Operative Nutritional Status and the Development of Systemic Inflammatory Response Syndrome and Sepsis Following Major Vascular Surgery

From University of Adelaide, Australia

Andreas Greiner (Prize for Poster Session)

Title The Impact of Isolated Aorto-Iliac Lesions on the High Energy Phosphate Metabolism in the Exercising Calf Muscle

From Innsbruck Medical University, Austria

2007

Joseph Dowdall (1st prize)

Title Mitigating Proximal Component Migration in Branched Endografts With Modular Joints - Benefit Or Calculated Risk?

From Cleveland Clinic Foundation, Cleveland, USA

ESVS Previous Prize Winners

- Title** **Liselott Hoornweg (2nd prize)**
Selection of Patients Anatomically Suitable for Endovascular Repair of a Ruptured Abdominal Aneurysm: Inter- and Intraobserver Variability of CT Measurements
- From** Academic Medical Center, Amsterdam, The Netherlands
- Title** **DHL Lee (Poster prize)**
Randomised Trial of Supervised Exercise Versus Angioplasty Versus Combined Therapy: Patients Undergoing Exercise Therapy Adapt to Oxygen Free radical Damage
- From** Academic Department of Vascular Surgery, University of Hull; Leeds Institute of Molecular Medicine, University of Leeds, United Kingdom

2008

- Title** **N Dias (1st prize)**
Is There Benefit of Frequent CT Follow-up After EVAR?
- From** Vascular Center Malmö-Lund, Malmö University Hospital, Malmö, Sweden
- Title** **J Richardson (2nd prize)**
Results of Transabdominal Repair of Extent IV Thoracoabdominal aneurysms
- From** Vascular Surgical Service, Royal Infirmary of Edinburgh, United Kingdom
- Title** **C M Kotze (Poster prize)**
Abdominal Aortic Aneurysm Inflammation Detected by 18F-fluorodeoxyglucose (18FFDG) Positron Emission Tomography/Computed Tomography (PET/CT)
- From** Brighton & Sussex University Hospitals NHS Trust, United Kingdom



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