SIR congress news

CIRSE 2008 - Copenhagen
Tuesday, September 16, 2008

Josef Roesch Lecture

John Kaufman
CIRSE 2008 Josef Roesch Lecturer

The CIRSE Roesch Lecture was founded in 2003 in honour of Professor Josef Rösch whose award-winning research work spans more than 50 years, covering a wide range of Vascular and Interventional Radiology. Two of his most notable achievements are the development of the TIPS technique in 1969 and the introduction of embolization into the treatment of gastrointestinal bleeding in 1971. To this day Professor Rösch continues to work on the development of new techniques and devices for interventional treatment.

This year's Roesch Lecture will be given by one of the most renowned interventionalists from the United States, current SIR President Professor John Kaufman. We invite all of you to attend his lecture entitled "Specialty, subspecialty or professional hobby?" today at 13:00 in Room A.

Paulo Vilares Morgado
Chairman of the CIRSE 2009
Local Host Committee

Dear Colleagues,

As the Chairman of the incoming Local Host Committee for CIRSE 2009 I feel very proud and honoured to assure the committee's commitment to make our next annual meeting a big success. As we know CIRSE continues to grow at a good rhythm, reaching out to new members, comprising an increasing number of affiliated national societies and providing more and more training and further education in Interventional Radiology.

The CIRSE congresses have become Europe's most comprehensive and innovative interventional meetings, expanding their reach beyond Europe and promoting public awareness and political attention to this appealing area of medicine. We are sure that we will be able to attract a record number of participants, as well as an outstanding number and quality of submitted oral presentations and EPOS posters to CIRSE 2009, based on a well-structured scientific programme made possible through the excellent academic work of the members of our society.

It is the ambition of the CIRSE 2009 Local Host Committee to contribute to CIRSE's positive development in quality and size. We also hope that our partners from the industry will continue their generous support next year, providing the conditions for an outstanding technical exhibition and contributing to the development of new devices.

CIRSE 2009 will be the second CIRSE meeting in Portugal and with its expected 5,000 attendees the biggest radiological congress ever to be held in our country. Apart from the excellent scientific content we are also deeply committed to assure a social programme that will exceed all your expectations, promoting informal gatherings and strengthening the bonds that unify our countries.

Our 2009 venue will be the Lisbon Congress Centre with a total area of 10,000m^2, providing the perfect setting for doctors, researchers, students, trainees, technicians and company representatives to meet and share experiences. Located at the banks of the river Tagus, close to one of Lisbon's best known monuments - the Belém Tower - and only a few minutes away from the city centre, the Lisbon Congress Centre is the perfect location for a congress the size of CIRSE's Annual Meeting.

Lisbon is a very cosmopolitan city, offering a splendid backdrop for CIRSE 2009.
Europe's westernmost and sunniest capital is also the world's 6th most popular destination for international congresses according to ICCA (in 2007 alone it hosted 90 international events).

When the first navigators set out for their maritime voyages of discovery many centuries ago, Lisbon became the capital of an empire comprising territories all over the world from South America (Brazil) to Asia (Macao, China, Goa and India), giving Lisbon the epithet "city of explorers". During your stay in Lisbon you will be able to admire its architectural marvels from Jerónimos Monastery to the Belém Tower and enjoy its treasures at the Calouste Gulbenkian Museum, the acclaimed CCB, the fantastic Berardo Collection of contemporary art or the new Oriental Museum.

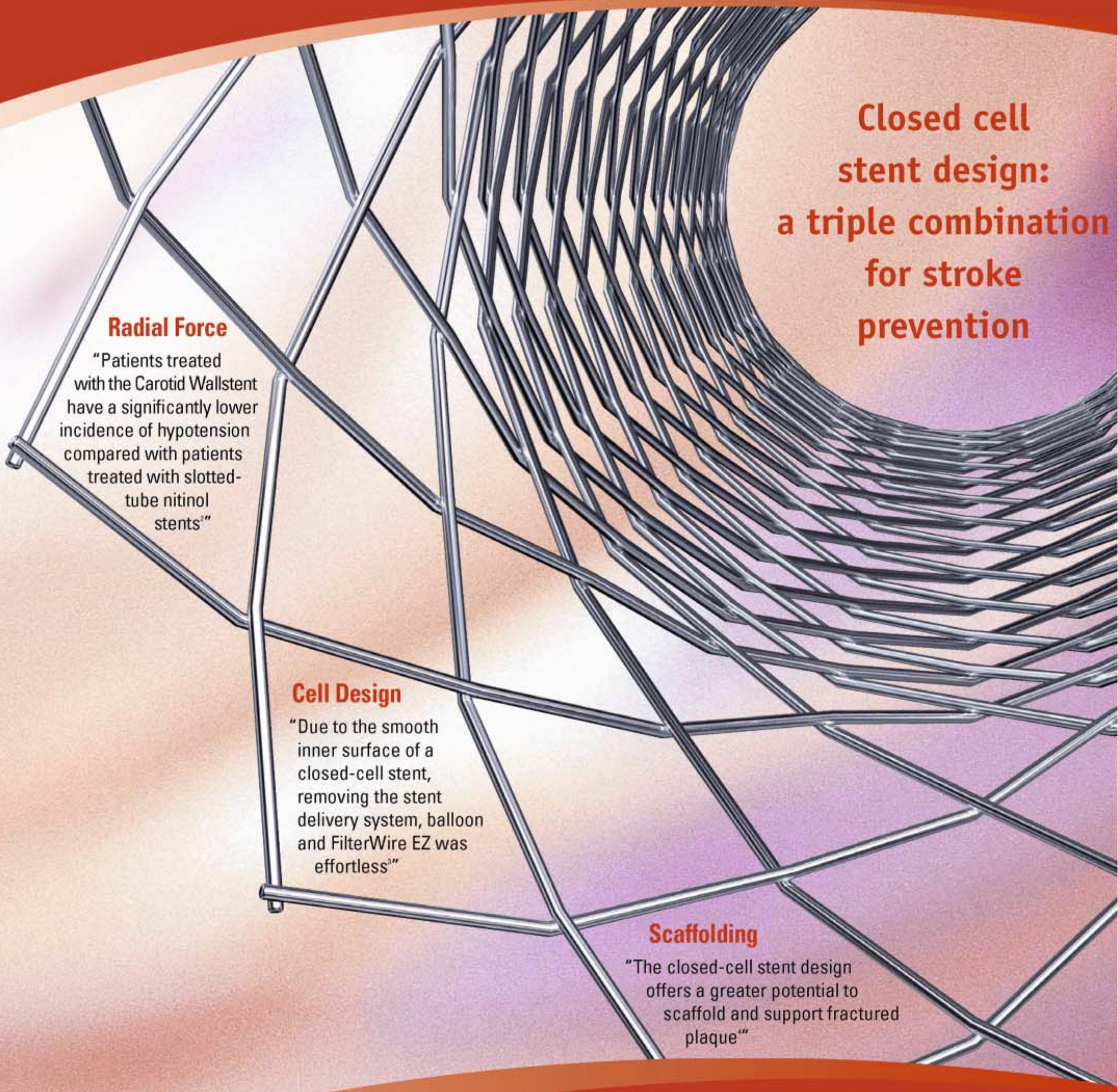
When wandering on the city's legendary seven hills you will be able to admire Lisbon's characteristic mosaic pavements and dazzling tiled façades. You will be rewarded with outstanding view-points offering breathtaking panoramic views of the city and a ride on one of the city's charming old trams. Get lost in the medieval maze of the Alfama district overlooked by an ancient castle and dive into the spectacular Oceanarium. At night Lisboners like to indulge in the city´s gastronomic delights, listen to the famous Fado songs or bar hop in the cobbled alleys of the Bairro Alto district.

I am glad to inform you that the preparations for CIRSE 2009 are proceeding well. Many people behind the scenes are working hard, doing their best to contribute to this venture with great energy. I would like to take this opportunity to thank the enthusiastic and visionary team in the Vienna office led by Daniel Waigl for their help and support in preparing the annual meeting in Lisbon.

I look forward to welcoming you all in Lisbon and hope that you will have an unforgettable time there!

Bem-vindo a Lisboa!

Closed cell stent design: a triple combination for stroke prevention



Radial Force

"Patients treated with the Carotid Wallstent have a significantly lower incidence of hypotension compared with patients treated with slotted-tube nitinol stents[2]"

Cell Design

"Due to the smooth inner surface of a closed-cell stent, removing the stent delivery system, balloon and FilterWire EZ was effortless[3]"

Scaffolding

"The closed-cell stent design offers a greater potential to scaffold and support fractured plaque[4]"

To date, only Boston Scientific's closed cell stent designs have the triple combination engineered for safe and effective carotid stenting: Optimal Scaffolding, Cell Design and Radial Force[1]*

But don't take our word for it. Ask the experts.

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[1]EJVES 33, 135e141 (2007); Does Free Cell Area Influence the Outcome in Carotid Artery Stenting? M. Bosiers et al

[2]Press Release of Dr. Katzen's data

[3]Dr. Ralf Langhoff, NexStent Clinical Vision #18 (October 2006)

[4]Press Release of Dr. Bosiers' Single Center Experience

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Don't miss it !
Josef Roesch Lecture
Tuesday, 13:00-14:45, Room A

Specialty, sub-specialty or professional hobby? Interventional Radiology at the crossroads

John Kaufman
SIR President
Professor for Interventional Radiology
Dotter Interventional Institute
Portland, Oregon

Interventional Radiology (IR) is experiencing powerful and often conflicting forces. The number and range of our procedures are greater than ever, but there has been contraction in areas of traditional strength. Super-specialised IR practices dedicated to one type of patient or disease are beginning to emerge, but we lack a common identity for the specialty. Non-procedural clinical care has emerged as an essential component of practice, yet our training overwhelmingly emphasises imaging and procedures. There is intense competition from other specialties that have adopted our procedures, and lack of support from Diagnostic Radiology (DR) colleagues. We struggle over what to call ourselves, but our name is being adapted by others for its minimally invasive modern cache (for example 'Interventional Nephrology'. A clear and coherent vision for the future of IR is essential during these uncertain times.

Recent developments in Canada provide a real-life example of the kinds of challenges we face. Last year IR was officially denied recognition as a subspecialty of Radiology by the Royal College of Physicians and Surgeons of Canada (RCPSC) (1). The RCPSC justified its decision saying that in its opinion interventional radiologists are not considered real clinicians by non-radiologists. Furthermore, the RCPSC felt that the proposed subspecialty was too restrictive as it would be limited to radiologists. In this refusal the RCPSC was expressing two commonly held opinions in medicine; radiologists are not real doctors because they do not take care of patients, and IR is just a collection of procedures that could and should be part of any procedural physician's skill set.

By equating interventional radiologists with diagnostic radiologists and conceptualising IR as nothing more than image-guided procedures, the RCPSC has identified the core issue for the future of IR; defining our relationship to DR. The origins of IR are firmly (and proudly) rooted in DR. Invasive vascular and non-vascular imaging techniques were originally developed by diagnostic radiologists as diagnostic tools. Another physician would order the study, a radiologist performed and interpreted it and the patient would return to the referring physician for aftercare and treatment. In the 1960's radiologists began to provide a limited number of therapeutic procedures. Now, over 40 years later, the practice of IR has changed in three major ways.

The first and biggest change is that IR has become largely a practice of intervention. Purely diagnostic angiographic or non-vascular procedures have been replaced by US, CT and MRI in many (but not all) countries. Interventions, by their very nature, require intensive physician-patient interactions and relationships atypical for DR. The second change is that there is now fierce competitive pressure from non-radiologists to adopt narrow but important segments of our procedural portfolio. Eventually every patient or disease-based specialty could acquire the image-guided interventions relevant to their interests. The development of specialised IR practices devoted to a single patient group or pathology is partly a response to this competitive pressure. The last and third change is that non-procedural care of patients in office and inpatient settings are now recognised as essential to the practice of IR (2,3). In order to perform procedures, we must provide the relevant non-procedural clinical care. Many of us now function as consultants on disease management, independently formulating and executing treatment plans even when an intervention is not performed. Though still in a minority, a growing number of individuals are able to practice IR 100% of the time, often limited to just a few procedures or types of patients (4).

IR has evolved into a practice based on prolonged patient interaction through performance of procedures and delivery of clinical care. Meanwhile, DR remains firmly based on the rapid interpretation of large volumes of imaging studies and minimal patient interaction. Despite these very different practice paradigms, IR is still most often viewed in the framework of DR - as the RCPSC has demonstrated. In general, the dominant practice model of IR is within a DR group or department, sometimes as a distinct subspecialty, other times not, and often in combination with diagnostic duties.

One reason that the IR practice paradigm has not changed is that we are still educating new practitioners in basically the same manner that we did 40 years ago: as DR sub-specialists. DR training is the most common pre-requisite for IR training throughout the world. In many countries an internship is not required, and DR training rarely includes exposure to clinical care of patients. After DR training there may be an additional one or two years of dedicated IR training during which the ever-increasing portfolio of procedures must be mastered. At the same time the trainee must now acquire the depth and breadth of clinical skills necessary to provide expert clinical care of patients. This is particularly difficult after 3 or 4 years of concentrated diagnostic imaging training during which patient care skills have been de-emphasised or ignored. The products of this educational process are ill-equipped to provide the level of clinical care necessary to compete effectively with the non-radiologist practitioners of image-guided interventions.

The educational needs of IR can no longer be optimally served as a subspecialty of DR. In essence, we must develop dedicated IR training programs that produce interventional radiologists, not diagnostic radiologists with added training in interventional procedures. Imaging expertise is essential for IR, but interventional radiologists do not need to be fully functional diagnostic radiologists to be expert image-guided interventionalists. If we really believe that the future of image-guided interventions belongs in radiology, IR must undergo the next evolutionary step and become a clinical rather than a diagnostic radiologic specialty, equal to but distinct from DR. This means accepting the radical notion that we will produce expert image-guided interventionalists who can provide all of the relevant non-procedural clinical care for their patients, but do not interpret diagnostic imaging.

I am not advocating that IR turn its back on radiology, but rather that it stand shoulder-to-shoulder with DR, at the same level as other medical specialties. Separate specialty status would elevate IR to equivalence with surgery, medicine or any other core specialty and consolidate our identity as more than just a collection of procedures. Specialty status would acknowledge that IR encompasses a unique set of imaging, procedural and clinical skills of sufficient breadth and complexity to be worthy of recognition as an independent professional entity.

I am also not advocating an abrupt and complete change, as this would not be appropriate in any country. Parallel training pathways with some individuals pursuing traditional DR and IR education and others following primary IR training will be the most successful formula.

What would the training for the dedicated IR specialist be? One proposed example can be found in the United States. The American Board of Radiology (ABR), which has oversight of DR, Radiation Oncology and Radiation Physics, has submitted a proposal for a primary certificate in IR to the organisation that regulates all recognised medical specialties, the American Board of Medical Specialties (ABMS). The proposed 5 year training program includes a 12 month internship (preferably surgery), 15 months of diagnostic imaging emphasising cross-sectional imaging, 6 months of clinical rotation interspersed during the IR training (which must include intensive care unit, vascular surgery and an oncologic specialty experience), and 27 months of graduated IR training. The IR training will be organised as an admitting clinical service with graded responsibility for longitudinal outpatient and inpatient care of IR patients as well as procedures. The final year of IR training will be as a chief resident, with responsibilities and privileges analogous to a surgical chief resident.

These training programs must be closely linked to DR programs, as the IR residents will function as radiology residents for the imaging months of training. In return, the IR residency will provide IR rotations and education for the DR residents. This mutual educational dependency will ensure professional alignment of the two specialties.

The graduates of these training programs would practice IR full time. They would have equal stature as interventional radiologists to graduates of any other core specialty training program, such as general surgery. They could then specialise further by taking fellowships in interventional oncology, peripheral arterial interventions, image-guided women's interventions, paediatric interventions, etc. The combination of their training and abilities in image-guided interventions and patient care would be unequalled. IR as the core specialty for image-guide interventions, with subspecialty differentiation according to patient populations or organs, would be realised.

New specialties require new ways of thinking about the structure of medicine. In some countries this may mean two separate radiology specialty organisations or sections - interventional and diagnostic. In other countries IR, DR and radiation oncology could all coexist under a single unifying radiology college or board. The point is that it is time to view imaging as a common over-arching bond between two specialties rather than the glue that binds IR as an appendage to DR.

Too big of a change? Doomed to failure because IRs will no longer be DRs (just like us)? Can't imagine why anyone would want to train as an interventional radiologist and not be a diagnostic radiologist as well? Consider what has happened so far; nephrologists are performing central venous stenting, gynecologists are performing UFE, cardiologists are placing aortic endografts and vascular surgeons are performing chemo-embolizations. Imaging equipment is readily available, the interventional tools are easy to use, device companies are more than happy to sell to and train non-radiologists and other specialists have superior access to patients. At the same time, our fellowships are going unfilled as diagnostic radiology residents choose to stay in the less demanding and more lucrative world of DR. Our training and skills in DR have not prevented the transmigration of image-guided procedures to other specialists in the past and will not stop it in the future. If we stay the course and insist that IR skills are secondary to DR, then IR will become a professional hobby for the lucky few who still have the training and access to the right kind of patients.

IR is in different stages of development throughout the world. Local cultural, social, political, economic, professional and historical factors are very important. For this reason, the specific vision of the future of IR will not be the same for all countries. But there is a global community and continuity of IR, such that changes in one locale impact all of us. An ultimate vision for IR can be shared by all.

IR has been, is currently, and should in the future be the core clinical specialty for image-guided interventions. Other specialists will continue to adopt and aggressively apply selected image-guided interventional techniques, but none can do it with the breadth, depth and completeness of IR. If we continue with the view that interventional radiologists must first be some other kind of specialist, such as a diagnostic radiologist, then this wonderful new specialty will slip through our hands and the fragments will be absorbed by other specialties. It is time for a separate IR specialty equal to, but distinct from DR and all other primary specialties. We need to accept that IR, a child of DR, can leave home, but still be a part of the family.

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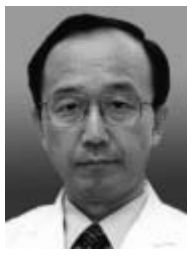

Sachio Kuribayashi
President of JSIR
Professor and Chairman of Radiology
Keio University School of Medicine

IR in Japan

Don't miss it !
CIRSE meets Japan
Tuesday, 13:00-14:45, Room A

The Japanese Society of Interventional Radiology (JSIR) was founded in 1974 and counts 2,075 members today. This great success was possible thanks to the initiative and efforts of Kyoichi Hiramatsu (Keio University), Ryusaku Yamada (Osaka Municipal University) and Hideo Uchida (Nara Medical College), as they largely contributed to the introduction and development of IR in Japan during the 1970s and 1980s. Over the past 34 years IR has matured into a distinct specialty in Japan with a broad range of vascular and non-vascular procedures performed in a wide spectrum of patients and diseases.

Interventional Radiology is recognised as indispensable to patient care within Japan's medical society. It is recognised as sub-specialty of radiology with board certification after completion of a standardised IR training programme and a special examination. Today there are 472 board certified IR doctors registered in our society.

The academic activities of JSIR include an annual scientific meeting and the publication of the "Japanese Journal of Interventional Radiology" which is the official journal of JSIR published on a quarterly basis. The Annual scientific meeting is organised in cooperation with the International Symposium of Interventional Radiology (ISIR) once every three years. This year the 10th ISIR was held in Karuizawa from May 14 to 17 together with the 37th Annual Meeting of the JSIR. Over 800 interventional radiologists from all over the world including Europe, America and Asia attended the symposium to discuss the field's hot topics and share their experiences. I am happy to say that many CIRSE members attended the meeting including Prof. Reekers who gave the "CIRSE Presidential Lecture".

It is a great honour and privilege for our society to be invited to the "CIRSE meets Japan" session on the occasion of this year's CIRSE meeting. We look forward to celebrating the long-standing and close relationship between CIRSE and the JSIR and to introducing you to some contributions of the Japanese IR community to the advancement of IR worldwide. In the session we will introduce some of our most important experts in the field of vascular and non-vascular IR in Japan. Selected topics are "BRTO for portal hypertension", "Superselective TACE for HCC with microcatheter" for vascular IR and "RFA for pulmonary malignancies" from the field of non-vascular IR, the concepts and techniques of which were invented, developed or refined in Japan.

We very much look forward to presenting these topics of special importance to IR in Japan to the CIRSE 2008 attendees and hope to see you at the session.

Controversies in vascular intervention - What is evidence based in vascular intervention?

Don't miss it !
Controversies in vascular intervention
Special Session
Tuesday, 10:00-11:00, Room A

Stefan Müller-Hülsbeck
Professor of Radiology
Head of the Department of Diagnostic and Interventional Radiology/Neuroradiology
Academic Hospitals Flensburg

To answer this question one has to perform some theoretical considerations and look for adequate definitions of what evidence based medicine (EBM) really means when adapted to radiology, especially to Vascular Interventional Radiology (IR).

As in diagnostic radiology, several levels of progressively stronger IR study design can be described and related to EBM 'levels of evidence'. These range from case reports and case series to case-control and cohort studies to randomised controlled trials (RCTs). The major weakness in the existing IR literature is the predominance of small, uncontrolled case series. Randomised controlled trials are likely to provide the best possible evidence of effectiveness. They are expensive and randomisation is sometimes unethical or impractical. Nevertheless, the number of these high level study samples is pleasantly growing.

Case control and cohort studies have been underutilised. Evidence based medicine indices of benefit and harm have not yet been applied in IR and may have clinical advantages over traditional statistical methods. Therefore a tool is needed to simplify the application of EBM analytic methods. Better education in research methods is needed to raise the levels of evidence provided by the bulk of IR research and allow new procedures to be introduced into practice appropriately (1).

Using standardised methods is the key for success in the EBM process to separate the wheat from the chaff. In order to do that the validity and strength of a scientific paper have to be analysed in the methods section. Assessing the validity of the paper means looking for systematic bias which might influence the results of the study. The study design, as described in the 'materials and methods' section of the paper, holds the key to determining the validity of a study. A few straightforward questions can expose major biases (2); for example:

Was the assignment of patients to treatments really randomised?
Were the study groups similar at the start of the trial?
Were the study groups treated equally, apart from the study intervention?
Were all patients who entered the study accounted for at its conclusion?
How large was the treatment effect?
How precise is the estimate of the treatment effect?
Were all clinically relevant outcomes reported?
Were the study patients similar to your own?
Were both, statistical and clinical significance, considered?
Is the therapeutic manoeuvre feasible in your practice?
Will the results help my patients?

By answering these questions, an assignment of the paper level of evidence becomes possible (1, 3-5).

Taking all of this into account, the level of evidence of scientific papers, including interventional literature, should be indicated in a defined research design rating as follows (adapted from the Oxford Centre for Evidence-based Medicine Levels of Evidence):

Level I:	Evidence from randomised controlled trial(s)
Level II-1:	Evidence from controlled trial(s) without randomisation
Level II-2:	Evidence from cohort or case-control analytic studies, preferably from more than one centre or research group
Level II-3:	Evidence from comparisons between times or places with or without the intervention; dramatic results in uncontrolled experiments could be included here
Level III:	Opinions of respected authorities, based on clinical experience; descriptive studies or reports of expert committees

As interventionalists, our daily practice is mainly based on published guidelines for minimally invasive treatments in daily clinical practice in IR, including criteria for adequate training for specific interventional procedures, as well as expected success and complication rates. These evidence-based guidelines are used by the FDA, hospitals and regulatory groups (6).

Based on guidelines and more than 40 years of practical experience in vascular IR, a huge number of interventional materials appeared and disappeared from the device market. Permanent improvement of manufacturing processes and device miniaturisation allows us to e.g. deploy stents anywhere in the vascular system. I would like to pick out to two fields in IR where controversies involve our daily practice: (I) the carotid bifurcation and (II) below the knee (BTK) procedures.

(I) the primary purpose of carotid artery revascularisation is stroke prevention, carotid endarterectomy and carotid artery stenting (CAS), each having inherent risks of procedure-related stroke. Different stent design including closed cell stents, open cell stents and a combination of both is available (Fig.1).

While the efficacy of embolic protection devices (EPDs) has established insaphenous vein graft intervention, there are no randomised studies comparing CAS with and without EPD. Driven by the industries, most physicians are convinced to use EPDs during CAS. However some groups, especially neuroradiologists, are more restrictive in the application of EPDs. In theory the availability of EPDs appears to be important in reducing the risk of stroke during CAS. Also, no large scale studies of proximal EPDs and comparative studies of various distal EPDs have been performed (7). Available data suggest that all distal EPDs have advantages and limitations and that the ideal device has not yet emerged. Although all distal EPDs appear to be able to capture and remove embolic debris, proper use of these devices does not ensure that distal embolization will not occur (8).

(II) Interventional shortcomings in the form of a lack of focus on the BTK territory, of which physicians and industry are equally culpable. The result has historically been that only sporadic single-centre reports and very few substantial series of treated patients with sufficient follow-up have been published. With one possible exception (the BASIL trial1), level-1 evidence is notorious for its absence (9).

The industry's failure to develop dedicated BTK systems that take into account the unique needs and characteristics of the BTK arterial morphology and disease has been overcome now. In addition to special balloon devices adapted to BTK arterial dimensions, balloon-expandable and self-expanding stents are available for deployment. With the exception of the Rand-Sorin-Trial (10), no data are available so far. A self-expanding nitinol platform is likely to emerge as the winner, but balloon-expandable stents may retain a role for treatment of focal calcified lesions (Fig.2). Drug-eluting stents and bioabsorbable devices have been tried and reported, but the amount and quality of available data do not allow for meaningful conclusions or guidelines at this time.

These are only two brand topics indicating potential controversies in IR. The field of controversies can easily be expanded to other regions like the SFA, the popliteal artery, the renals and intracranial arterial stenoses, etc. where the EBM is not yet determined in terms of techniques ensuring promising patency rates. In order to be safer, further trials in the huge field of IR are warranted in order to answer the question of what is really evidence based in Interventional Radiology.

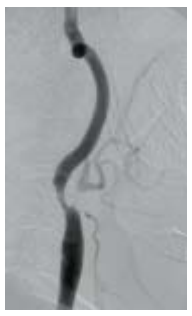

Fig.1a: Angiogram from a symptomatic patient presenting a high-grade internal carotid artery stenosis and coiling of the distal cervical part.

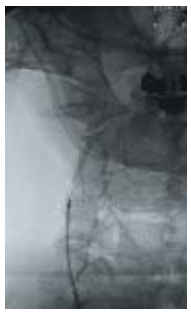

Fig.1b: Fluoroscopic view after deployment of a self-expanding hybrid stent, the calcified lesion was covered by the middle part of the stent (closed cell design).

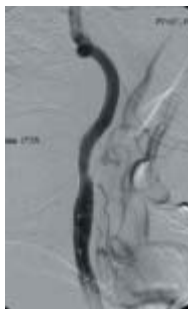

Fig.1c: Final angiogram after additional PTA. Neither a proximal nor a distal protection device was used.

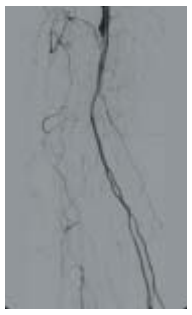

Fig.2a: Angiogram from a patient suffering from critical limb ischemia.

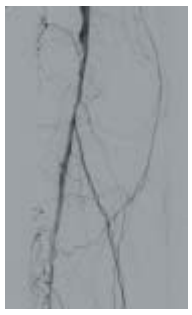

Fig.2b: Stents currently available guarantee a high technical success rate in case of supposed insufficient PTA.

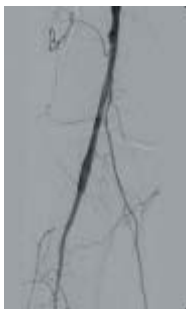

Fig.2c: Current case was treated with a self-expanding stent deployed in the third popliteal artery segment and with a balloon expandable stent deployed in the tibiofibular trunk.

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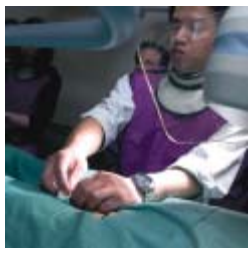
1) The best for expertise



The Crossroads Institute's medical education program is led by Professor Jean Marco of the Centre Cardio Thoracique in Monaco and Dr. Luc Stockx of the Ziekenhuis Oost-Limburg in Belgium, who developed an educational program to offer healthcare professionals patient-focused training on the latest subjects and techniques in cardiac and vascular care. They preside over the Crossroads Institute's global teaching faculty of over 100 experts. Programs are tailored to the different needs and levels of experience of participating healthcare professionals.

2) The best for technology

The Crossroads Institute offers high-tech simulated-reality teaching techniques including simulator systems and an in-house catheterization lab utilising realistic anatomical flowmodels. By introducing hands-on experience into a collaborative educational environment, these innovative tools are designed to help physicians learn the latest approaches in cardiac and vascular treatment.

3) The best for discussion

The Crossroads Institute's forums enable participants to discuss up-to-the-minute news and issues in global interventional cardiology, interventional radiology and vascular surgery. In addition, the Crossroads Institute offers live case broadcasts from neighbouring hospitals, enabling real-time discussion of catheterization lab events as they happen with world-renowned cardiac and vascular disease experts.

4) The best for choice in accreditation

The Crossroads Institute offers more than 70 courses in cardiac and vascular disease management. Each course is developed and led by participating faculty members, with over 45 courses being CME-accredited. Abbott Vascular and the Crossroads Institute sponsors ESIR - The European School of Interventional Radiology. This year two institutional courses on carotid artery stenting and treatment of peripheral arterial disease will be hosted at the Crossroads Institute. Plans for 2009 are already in the pipeline. For further information on this year's courses please visit www.cirse.org.

"The Crossroads Institute offers best-in-class medical education on interventional treatment options for cardiac and vascular disease', said Dr. Luc Stockx, M.D., medical education program director for the Crossroads Institute." Healthcare professionals at all levels from across Europe, the Middle East and Africa can benefit from our cutting-edge educational resources, which are designed to provide physicians with new treatment strategies to improve patient care."

About the Crossroads Institute

Providing leadership in interventional medical education since 2000, the Crossroads Institute was the first medical learning institute of this kind established in the world to advance the open exchange of information about cardiac and vascular care in order to help healthcare professionals improve the treatment of cardiac and vascular disease. The Crossroads Institute is a world class medical education facility funded by Abbott and headquartered in Brussels, Belgium with additional facilities in Tokyo, Japan and Johannesburg, South Africa.
For more information about The Crossroads Institute, phone +32-2-714-14-65 or visit www.crossroads-institute.com.

About Abbott Vascular

Abbott Vascular, a division of Abbott, is one of the world's leading vascular care businesses. Abbott Vascular is uniquely focused on advancing the treatment of vascular disease and improving patient care by combining the latest medical device innovations with world-class pharmaceuticals, investing in research and development, and advancing medicine through training and education. Headquartered in Northern California, Abbott Vascular offers a comprehensive portfolio of vessel closure, endovascular and coronary products.

About Abbott

Abbott is a global, broad-based health care company devoted to the discovery, development, manufacture and marketing of pharmaceuticals and medical products, including nutritionals, devices and diagnostics. The company employs 68,000 people and markets its products in more than 130 countries.

Gore to Preview the Next Generation GORE VIABAHN® Endoprosthesis at CIRSE 2008

Photo courtesy of W. L. Gore & Associates, Inc.

W. L. Gore & Associates will be previewing the new GORE VIABAHN® Endoprosthesis with Heparin Bioactive Surface stent graft for the treatment of peripheral vascular disease in the superficial femoral artery at this year's CIRSE congress with a symposium, Monday 15 September, 8.00-8.20 h. According to the company, the GORE VIABAHN® Endoprosthesis with Heparin Bioactive Surface is the only device of its kind on the market approved for treating the superficial femoral artery (received U.S. FDA approval in July 2007).
The device uses end-point covalent bonding to keep the heparin anchored to the endoprosthesis surface over time. The proprietary end-point surface attachment technology preserves the heparin bioactive sites such that they remain free to interact with the blood without being consumed.
According to Dr Gary Ansel, interventional cardiologist at Mid Ohio Cardiology and Vascular Consultants and Riverside Methodist Hospital, "Clinical data has confirmed the success and safety of the GORE VIABAHN® Endoprosthesis for use as an endoluminal bypass. The addition of the heparin-bonded ePTFE component is the first of its kind for the superficial femoral artery and an exciting advancement that we are anxious to apply in our practice." Ansel performed the first worldwide implant of the device in August 2007.

Gore VIPER Clinical Study

Gore & Associates has initiated the Gore VIPER (GORE VIABAHN® Endoprosthesis with Heparin Bioactive Surface for SuPERficial Femoral Artery Endoluminal Bypass) Clinical Study, a prospective, single-arm, multi-centre U.S. evaluation of the GORE VIABAHN® Endoprosthesis with Heparin Bioactive Surface. The Gore VIPER Clinical Study aims to collect important performance data of the device in the superficial femoral artery, which combines Gore's proprietary heparin surface treatment with the proven performance of the GORE VIABAHN® Endoprosthesis.
The first patient to enter the post-market evaluation underwent successful implantation in October 2007. The procedure was performed by Dr. Richard Saxon, Tri-City Medical Center, Oceanside, CA.
"The implant procedure went quite well and we will monitor the patient carefully to measure long-term performance of the endoluminal bypass," said Saxon, the principal investigator for the study. "While the GORE VIABAHN® Endoprosthesis has been shown to be clinically effective, there is no data on its performance when using the Heparin Bioactive Surface. We aim to fill this data gap through the Gore VIPER Clinical Study."

Gore VIBRANT Clinical Study

As part of the company's commitment to clinical data, Gore & Associates has also sponsored the Gore VIBRANT Clinical Study (VIaBahn (endoprosthesis) veRsus bAre Nitinol stenT), a randomised, prospective, multi-centre clinical trial intended to demonstrate patency superiority in the treatment of superficial femoral artery lesions 8cm or longer with the GORE VIABAHN® Endoprosthesis (without Heparin Bioactive Surface) compared to bare Nitinol stents. At the recent International Symposium on Endovascular Therapy (ISET), Dr. Mark W Mewissen, Director, St Lukes Vascular Center, Milwaukee, WI, presented an update on the Gore VIBRANT Clinical Study.
The study recently completed enrolment of 152 patients at 15 study sites. Follow-up will include with patency surveillance via duplex ultrasound at one-, six-, 12-, 24- and 36-month intervals. An independent core laboratory will interpret results of the follow-up ultrasound imaging studies. Study endpoints focus on primary and secondary patency, and the state of vessel blood flow in the treated artery.
In total, 74 patients have received the GORE VIABAHN® Endoprosthesis and 77 patients a bare nitinol stent. Both study arms had similar rates of technical success (98.6% and 98.7% for the GORE VIABAHN® Endoprosthesis and bare stent arms, respectively). There was one access site complication reported in the VIABAHN® device group. Primary patency at 30 days was 98.6% in the GORE VIABAHN® Endoprosthesis group and 97.4% in the bare nitinol stent group. Loss of primary patency was defined as ?50 stenosis within the target lesion, determined by ultrasound (PSVR ?2.0 or absence of blood flow) or angiography.
The initial results have shown that occlusive lesions of the superficial femoral artery can be treated with bare nitinol stents and GORE VIABAHN® stent-grafts with a high degree of technical success. At three years the study will yield valuable data regarding mid-term and long-term performance of bare nitinol stents and the GORE VIABAHN® Endoprosthesis in the superficial femoral artery.

CIRSE 2008 Activities

The GORE VIABAHN® Endoprosthesis for SFA Endoluminal Bypass will be the topic of Dr. Romi Chopra's (Chicago, IL) and Prof. Johannes Lammer's (Vienna, Austria) talk at the Monday morning symposium (8.00-8.20), September 15. Both presentations will be in the main auditorium, moderated by Dr. E. Verhoeven (Groningen, The Netherlands).
In addition, Gore & Associates will be hosting two 'Meet the experts SFA workshops' on Monday September 15 at the gore learning center. At this interactive workshop, Dr. Romi Chopra (Chicago, IL) and Dr. R. Kruze will discuss the aspects of long term data (up to 5 years) with the GORE VIABAHN® Endoprosthesis.
Lessons learned and the expectations of the new Heparin Bioactive Surface will be addressed at this workshop. Physicians can sign in for these workshops (two, maximum capacity: 60 persons) at the Gore booth. Both SFA workshops will be moderated by Prof. R. Nymann (Sweden) and Prof. Rampoldi (Italy). Physicians can also bring their own case and discuss this directly with the experts. The workshops start at 12.00 and 13.30h.

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AM1615-EU2 JUNE 2008

Simple principles of post-UFE pain management

James Spies
Professor and Chair, Department of Radiology
Georgetown University School of Medicine
Washington D.C., USA

Don't miss it !
UFE Challenges
Workshop
Tuesday, 16:30-17:30, Room G
Uterine Fibroid Embolization
Special Session
Wednesday, 8:30-9:30, Room C

As UFE enjoys increasing acceptance and the evidence supporting its efficacy grows (1,2), the patient experience during and after the procedure have become paramount. Minimally-invasive gynaecologic surgical procedures have resulted in shorter and less debilitating recoveries than traditional approaches. As those outcomes have improved, the relative recoveries after uterine embolization and hysterectomy are undergoing comparison (3). While the pain and return to work favors embolization when compared to abdominal hysterectomy, there is a much less obvious difference when compared to laparoscopic hysterectomy. It therefore becomes more important than ever for interventionalists performing UFE to ensure that patient pain and recovery is managed optimally.

In recent presentations at the ECIO and GEST meetings, pain management strategies after UFE were reviewed. The typical expected recovery after UFE was outlined, with the levels of pain during the first week in 99 patients. Those results are summarised in Table 1.

From the table it is clear that the level of pain in the first 24 hours is quite modest at a mean of 3.03 and the maximum pain noted in the first week is a mean of 4.89. Only 19 patients experienced pain above a VAS score of 7. The study confirms what has been commonly recognised, that the pain after UFE has 2 distinct phases: an initial ischemic pain period of 4 to 6 hours and a second phase due to developing inflammation that peaks at 24 to 48 hours after treatment. The table shows that by days 3 or 4 after treatment the pain is minimal in the majority of patients. Of these patients 94% missed less than 10 days of work.

The patients in this study had a very tolerable recovery, because they were aggressively managed post-treatment. Each of them was treated with a standard pain regimen, but supplemental narcotics were available at the earliest signs of break through pain. It is easiest to treat the pain before it becomes severe. Many centres use patient controlled analgesia pumps, but set pain medication dosing or intermittent dosing is also used (5).

Another approach is the superior hypogastric nerve block, first reported for UFE in 2004 (6). Performed during the procedure before embolization, the nerve block requires passage of a 21 gauge needle to the pre-vertebral area at the level of the aortic bifurcation. After confirmation of needle tip localisation, the anaesthetic is injected. This has been reported to substantially reduce the pain that can occur as a result of embolization. The technique was again reported by Christoph Binkert of Zurich at the GEST meeting, with his group noting similar excellent results. Details of the technique are provided in the reference.

Finally, some interventionalists use epidural analgesia with excellent pain control. This is less attractive to some, as it has a small risk of spinal headache and requires the coordination of care with an anaesthesiologist.

The literature confirms that many different approaches will provide good pain control, but all approaches require careful planning and coordination of care. The nursing staff that will care for these patients must be trained in what to expect and how to respond to patient's pain medication needs. The protocol needs to be set up before treating the first patient and each caregiver should be included in the plan. If a PCA pump is to be used, it should be ready for use at the conclusion of the procedure, not an hour or two later on the nursing unit.

Very commonly, the initial pain may become severe in the first hour after the procedure. If not immediately addressed, this pain can result in a very poor patient experience. Similarly, regardless of the protocol, supplemental narcotics are frequently required and are given in addition to the protocol medications. In our centre, for example, we use an initial PCA dose of 4 milligrams of morphine sulphate and set the pump with a demand dose that can be varied by the nursing staff from 0.5 to 2 milligrams every 8 minutes. This is in addition to a parenteral NSAID, ketorolac (Toradol). Often this is inadequate to control the pain at one point or another during the first several hours post-procedure. Additional doses of 4 milligrams of morphine will be used to control breakthrough pain in this circumstance. We often will order a 4 milligram dose followed by an additional 4 milligram dose in 10 minutes if pain does not go below 5 on a numeric 0 to 10 scale. If there is no response after 2 or 3 morphine doses, a dose of fentanyl may be tried to see if the patient will respond better. This type of flexibility is important to ensure optimal pain control.

Once the patient is discharged (either late the same day after the procedure or the next morning), a combination of oral NSAIDS and oral narcotics are typically used for the first several days. There are many acceptable approaches in use, with some groups using continuous release morphine, while others use hydromorphone, hydrocodone or oxycodone, often compounded with acetaminophen (paracetamol).

At both, GEST and ECIO, it was clear in the presentations and panel discussions that there is very wide variability in specific dosing regimens, medication choice and protocols for supplemental pain management. It was perhaps not surprising that the variability is greatest between the US, Europe and Asia, given the different medications available in each region. For example, parenteral paracetamol (acetominophen) is a mainstay of many post-procedure pain regimens in Europe, while it is unavailable in the US. Given this variability, it is difficult to recommend an ideal regimen that is universally applicable. Consultation with experienced UFE providers in one's region and with pain management specialists in one's institution can best provide the basis for a protocol that will be effective.

Over-embolization is another potential cause of severe pain and one that is easy to avoid. UFE has gained a reputation as a very painful procedure in part because it is common to completely occlude the uterine arteries, even including the use of supplemental embolics. This results in unnecessarily severe pain in the first hours post-procedure. Most experienced providers embolize to a less complete endpoint. For the use of tris-acryl gelatin microspheres, sluggish flow should remain, often described as slow forward flow, with an injection in the main uterine artery flowing forward but remaining visualised in the main uterine vessel for about 5 cardiac beats. The endpoint with polyvinyl alcohol particles is more occluded, with near stasis, described as flow that very slowly flows forward, but often oscillating back and forth.

With careful planning and flexibility in approach, pain management after UFE is not difficult and, in nearly all cases, successful. If we succeed collectively in making UFE a more tolerable procedure, the unfortunate reputation of a painful recovery after UFE will become a thing of the past.

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Table 1: Pain levels after UFE

N = 99	**Number of patients**			
Maximum VAS Score*	Mean Score	VAS < 4	VAS 4-7	VAS >7
In hospital	3.03	67	21	11
Day 2	4.33	52	38	15
Day 3	3.44	56	33	4
Day 4	2.37	73	17	3
Day 5	1.74	80	10	3
Day 6	1.3	86	3	3
Day 7	1.29	84	2	3
Maximum outpatient VAS (day 2-7)	4.89	31	42	19

** VAS Score: VAS score is a representation of the severity of pain marked on a 10 cm line, with the left end marked "no pain" and the right end marked "worst imaginable pain". Therefore, lower scores indicate less pain.*



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Don't miss it !
Vertebroplasty
Hands-on Workshop SIV-HWS 3
Tuesday, 16:45-18:45, Rigshospitalet

Management of aggressive vertebral hemangiomas

Vertebral hemangiomas (VH) are benign vascular malformations found in 12% of general autopsy series. 50% of bone hemangiomas are located in the spine, predominantly at thoracic level. VH are mainly capillary and cavernous, with or without arterio-venous shunts (Murphey et al. 1995; Choi and Murphey 2000; Gray et al. 1989). Their non vascular compartment includes fat, smooth muscle, fibrosis, hemosiderin and bone. The ratio of fatty and vascular component (F/V) directly correlates with the imaging features of evolution and aggressiveness (Baudrez et al. 2001; Ross et al. 1987; Laredo et al. 1990) and the clinical symptoms.

We propose a classification of the vertebral hemangiomas taking into account the ratio of fatty and vascular component, their extension and symptoms:

Type I: Fatty hemangioma without any contrast enhancement.
Type II: Intermediate hemangioma containing large fatty compartment with heterogeneous contrast enhancement, all abnormalities limited to the vertebrae.
Type III: Aggressive hemangioma (usually painful) with intense contrast enhancement limited to the vertebrae without mass effect and extension to the paravertebral and epidural compartment (paravertebral thickening can be observed). No neurological symptoms.
Type IV: Aggressive hemangioma with intense contrast enhancement and extension to the paravertebral and/or epidural space. Could be associated to neurological symptoms.

- Fatty VH (F>V) represent 99% of cases (Type I). These lesions are asymptomatic, infiltrated with fat and have negligible growth potential. It is a common incidental finding with hyper-intense signal on both T1 and T2-w MR sequences due to the fat component. Contrast injection shows minimal or no enhancement. No paravertebral or epidural venous drainage is visualised. They are limited to the vertebral body. These non-aggressive VH do not require any treatment or follow-up.
- Intermediate VH (F=V) (Type II) have mild vascularisation. The associated symptoms are inconstant and non specific. Due to their unpredictable evolution, follow-up is necessary. If changes occur, treatment is required.
- Aggressive VH (V>F) represent less than 1% of VH (Type III and IV). Due to their large vascular component, these lesions have a high potential for growth. They are often painful. They can extend to the posterior arch or involve the entire vertebral body, structurally weakening it, with potential pathological fracture. They can extend to the paravertebral spaces and into the spinal canal, causing neurological compression. Pregnancy is known as a risk factor for quiescent VH becoming symptomatic (Castel et al. 1999; Chi et al. 2005). This progression may be due to hemodynamic changes more than hormones (Schwartz et al. 2000). On MRI the signal is vascular: hypointense on T1W, hyperintense on T2W and intense enhancement after gadolinium injection. Treatment is always required.
- Several treatment options for aggressive hemangiomas (Type III and IV) include radiation therapy, decompression and reconstructive surgery, arterial embolization, vertebroplasty and intravertebral sclerotherapy. For the most complex cases combined therapies are necessary (Ide et al. 1996; Cortet et al. 1994; Heyd et al. 2001).

Therapeutic options:
- Radiation therapy (split doses of 2 Gy total dose of 20 to 40 Gy) creates vascular thrombosis by endothelial destruction. Its efficacy is intermediate on pain with a reported success rate of about 70% (Faria et al. 1985). The delayed effect is not suitable if an urgent spinal cord decompression is required. This technique does not provide vertebral consolidation. Moreover it induces a risk of radiation to the spinal cord and radiation induced cancers (Obana et al. 1996). This treatment modality has rarely been used since the development of other techniques.
- Surgery provides effective decompression of neurological structures and vertebral consolidation (Roy-Camille et al. 1989). The major difficulty of the surgical technique is a high risk of massive perioperative haemorrhage if no preoperative treatment aiming to reduce the vascular component of the aggressive VH has been performed.
- Arterial embolization is rarely considered as a single treatment, but generally performed prior to surgery to reduce the risk of perioperative haemorrhage (Picard et al. 1989). Selective embolization is sometimes impossible due to tortuous vessels or due to an emerging segmental anterior medullary artery. Moreover post-capillary penetration is limited (VH is mainly a post-capillary malformation). This technique is not systematically considered since the introduction of direct intravertebral sclerotherapy and vertebroplasty.
- Vertebroplasty: the first case of percutaneous vertebroplasty reported was performed by Deramond in an aggressive VH of the axis (Galibert et al. 1987). In the same setting injection of acrylic cement achieves obstruction of the VH and vertebral consolidation. The technique of vertebroplasty is similar to other indications. However, due to the rich vascularisation phlebography with antero-posterior and lateral projections is systematically performed to anticipate any risk of cement leakage.
- Vertebroplasty can be considered as a single treatment for aggressive VH limited to the vertebrae (Type III). An optimal filling is mandatory to completely embolise the hemangioma and to avoid recurrences. However, it is not suitable to treat the epidural extension of VH. In such cases it must be combined with prior sclerotherapy and/or post-procedure laminectomy. Surgery following vertebroplasty is associated with reduced blood loss and limited to laminectomy, as the anterior consolidation is already achieved (Ide et al. 1996).
- Intravertebral sclerotherapy consists of the injection of a sclerosing agent via direct percutaneous vertebral puncture using an 18 gauge spinal needle, resulting in thrombosis of the vascular channels of the aggressive VH. Sclerotherapy is indicated to treat aggressive VH with epidural, paravertebral, foraminal or posterior arch extension, with or without neurological symptoms (Type IV and rarely type III with posterior vertebral arc extension).

The sclerosants used are alcohol based agents. All sclerosants need to be mixed with lipiodol to make them radio-opaque. Systematic antero-posterior and lateral phlebography with and without digital subtraction is required to evaluate the venous drainage of the VH and possible arterial communication. A combination of CT and fluoroscopic guidance can be useful for complex cases. The volume of contrast used to opacify normal draining veins helps to quantify the volume of sclerosant to inject. N-butyl cyanoacrylate is a rapidly polymerising plastic of low viscosity that allows diffusion into the epidural component following injection into the hemagiomatous bone. Furthermore due to its lack of solidification it does not make laminectomy difficult (Cotten et al. 1996).

In our hospital we prefer Ethibloc®, a mixture of alcohol and zein (corn protein), as its higher viscosity gives a better control during injection. In addition to thrombosing the vessels, alcohol based sclerosants induce a fibrous retraction, which in the epidural component results in shrinkage. Thus in some cases it reduces neurological compression and avoids surgical decompression (Gabal 2002). However, these agents - especially Ethibloc - induce an intense acute inflammatory reaction that may worsen neurological compression within the first 3 days (Heiss et al. 1996). Therefore in VH with epidural extension high dose intravenous steroids are recommended (250 mg Solumedrol x 3/day) starting a day before and continuing 3 days after the procedure.

Fragilisation induced by the sclerosant increases the risk of vertebral collapse when the vertebral body is involved (Doppman et al. 2000). In such cases, consolidation is achieved by additional vertebroplasty which is performed within 15 days. Due to the residual opacity of the sclerotic agent in the vertebra, the injection of cement cannot be performed the same day. To avoid recurrence, complete embolisation of the VH is recommended and confirmed by a follow-up dynamic MRI scan.

Results:
The treatment of aggressive hemangiomas was based on radiotherapy and surgery. Due to the complications of these techniques alternative treatments have been developed. The recent treatments consist of vertebroplasty, sclerotherapy, embolisation and decompressive surgery, alone or in combination.

A surgical review of 45 patients with aggressive vertebral hemangiomas reported 75.5% favourable results based on surgery and/or radiotherapy. The mortality was 11.1% with recurrence in 13 cases. (Nguyen et al. 1989; Nguyen et al. 1989). Radiotherapy was widely used in the management of aggressive hemangiomas with symptoms relief obtained in 88% of cases. However, the inconstant results and the major side effects of radiation myelitis and malignant transformation have considerably reduced the indication of this method.

Hyperselective arterial embolization in 19 cases of VH was reported by Picard (Picard et al. 1989). In five cases, embolization was followed by surgical decompression. In two cases embolization was not performed due to the close proximity of the artery of Adamkiewicz. Pain relief was good in 12 cases. Transarterial embolization on its own is not a promising therapeutic modality, as its principle aim is to reduce vascularisation of the VH. However, it is a safe and effective adjunctive procedure to surgery, as it minimises perioperative hemorrage. (Smith et al. 1993).

Goyal used single ethanol injection in 14 patients with symptomatic VH (Goyal et al. 1999). He reported 86% satisfactory results. However, two complications were reported including one paravertebral abscess and one secondary vertebral collapse. Niemeyer reports one Brown Sequard syndrome after sclerotherapy with ethanol in a VH (Niemeyer et al. 1999). Doppman reported two vertebral collapses following large volume of ethanol injection in VH (Doppman et al. 2000). In a series of 19 patients treated by single vertebroplasty for symptomatic VH Brunot reports a success rate of 90% in the short or long term period (Brunot et al. 2005).

During the past 15 years 33 aggressive cases of VH in 32 patients (8 males, 24 females) were treated in our institution. All patients complained of axial pain and 9 had neurological symptoms (4 radicular pain, 5 motor deficit). A single vertebroplasty was performed in 22 patients for aggressive VH limited to the vertebral body or with minimal paravertebral extension. In cases of large paravertebral or epidural extension combined techniques were used. Scheduled laminecomy was only necessary in 3 cases. In seven cases with paravertebral and/or epidural extension of the hemangioma a sclerotherapy was performed followed by a scheduled vertebroplasty.

Significant or complete pain relief was achieved in 30/32 patients. Neurological symptoms relief occurred in all cases. No secondary vertebral fracture was noted. Five minor cement leakages remained asymptomatic. There was one major recurrence 10 years after initial treatment. It was successfully treated in a single session of sclerotherapy with injection of 25 ml of Ethibloc. The only major complication we encountered was a cauda equina syndrome occurring 12 hours after sclerotherapy of an aggressive VH with large epidural extension. It occurred as a result of the inflammatory reaction to Ethibloc, but a high dose of steroid was

not taken in accordance to prescription. Complete recovery was achieved after urgent laminectomy and no perioperative blood loss was noted.

Treatment strategy:
We advocate the following strategy for the management of aggressive vertebral hemangiomas:

- For aggressive VH limited to the vertebral body (Type III) vertebroplasty is the leading treatment, as it achieves embolization of the VH and consolidation of the vertebral body in a single session. (Fig.1a-c)
- For aggressive VH with large paravertebral or epidural extension (Type IV), sclerotherapy utilising Ethibloc or ethanol is performed. The early inflammatory reaction is treated with a high dose of steroids. After 10 to 15 days an MRI confirms the complete embolization of the aggressive VH. Consolidation is then achieved by additional vertebroplasty to avoid secondary collapse (Fig. 2a-c).
- Laminectomy is considered in major epidural extension with neurological deficit. The risk of massive perioperative haemorrhage is high if no prior treatment aiming to reduce vascularisation has been performed. Therefore, a previous sclerotherapy and/or arterial embolization are advocated.
- Arterial embolization prior to laminectomy has not been systematically performed since the introduction of sclerotherapy and vertebroplasty.
- Radiation therapy gives inconstant results with delayed effects and risk of spinal cord damage. For this reason it is rarely indicated since the development of other techniques.

For aggressive vertebral hemangiomas optimal embolization of the lesion is required to avoid recurrence. Clinical and imaging follow-up (MRI) confirms absence of further evolution.

Other vascular bone tumours or malformations such as aneurysmal bone cysts (ABC) can also be treated with cementoplasty and/or sclerotherapy. In some cases where surgery may be complex or disabling, cement injection provides an effective alternative simultaneously achieving pain control and consolidation.
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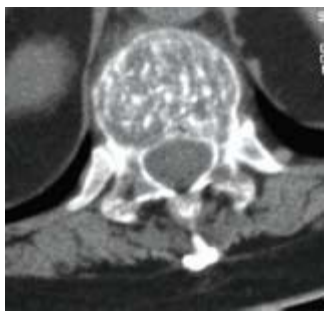


Fig.1a

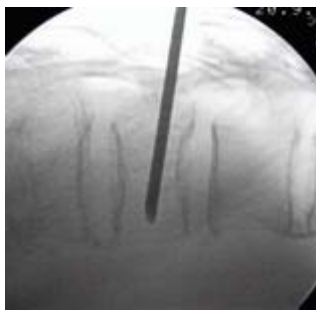


Fig.1b

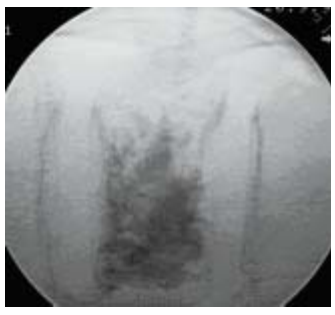


Fig.1c

Fig.1:
a: Aggressive hemangioma type III with intense contraste enhancement, vertebral collapse.
b,c: Percutaneous Vertebroplasty with excellent long term result.

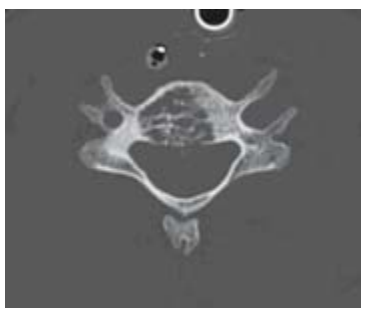


Fig.2a

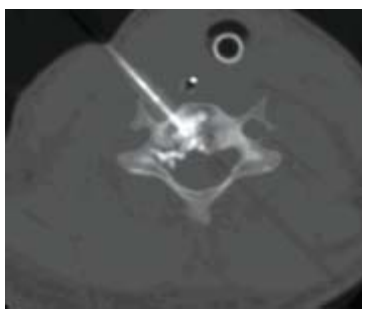


Fig.2b

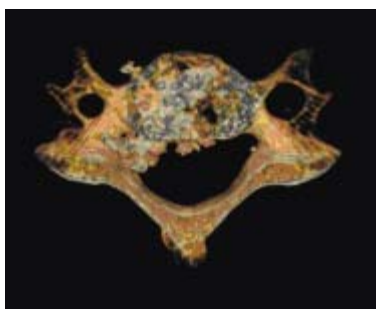


Fig.2c

Fig.2:
a: Aggressive vertebral hemangioma type IV with extension of the lesion in the spinal canal with neuralgia.
b: Sclerotherapy performed under fluoroscopy and fluoroCT for a complete filling of the hemangioma including intracanalar lesion.
c: 3D reconstruction demonstrating the complete filling of the hemangioma with sclerosing agent. Vertebroplasty performed Two weeks after the sclerotherapy.

Atherectomy: the current status

Gunnar Tepe
Professor at the University of Tuebingen, Germany

In this article the available atherectomy devices and in particular the clinical experience with directional atherectomy (SilverHawk™, FoxHollow/ev3) will be described. The objective is to encourage our industry partners to design and run high level clinical trials.

Atherectomy is increasingly incorporated as a new technology in the daily practice for our patients. De novo lesions, restenosis and in-stent restenosis (off label) might be treated with atherectomy. This article will summarise the current available data .

Directional Atherectomy
The SilverHawk Plaque Excision System was approved in 2003 by the FDA to treat PAD. The device self-apposes the atheroma through a hinge system and contains a carbide cutter with variable height depending on the device used which rotates at speeds up to 8,000 rpm. It shaves atherosclerotic material from the luminal portion of the arterial wall rather than compressing the plaque and is contained within a distal nosecone.

Dr. Zeller, Bad Krozingen, Germany, has published 2 single centre studies for ABK (84 pts) and BTK (36 pts) patient populations. They reported 12 and 24 months result of BTK arterial lesions and concluded that BTK lesions can be treated successfully and safely with directional atherectomy. The primary and secondary patency rates were 67% and 91% after 1 year and 60% and 80% after 24 months.
Furthermore the report on 18 months follow up of femoro-popliteal lesions is in favour of de novo lesions compared with restenotic lesions. Forty-five lesions were de novo lesions (group 1; 34%), 43 lesions native vessel restenoses (group 2; 33%), and 43 lesions in-stent restenoses (group 3; 33%). Primary patency, detected by duplex, was 73%, 42%, and 49%, at 18 months. The target lesion revascularisation rates were 22%, 56%, and 49% at 18 months for group 1, group 2, and group 3, respectively. The ankle-brachial index was significantly improved after 12 months and 18 months in all groups.

Other Devices
Another atherectomy modality currently available is the Excimer laser (Spectranetics Corporation, Colorado Springs, CO). Its key feature is the ability to debulk and ablate tissue without damaging surrounding tissue, thus minimising restenosis. Newer atherectomy devices include the CSI Orbital Atherectomy device (Cardiovascular Systems, Inc., St. Paul, MN), which utilises an eccentrically shaped wire coil and diamond-coated abrasive crown. The rotational aspirating atherectomy device (Pathway Medical Technologies, Redmond, WA) received FDA approval only recently. It combines the two actions of aspiration with differential plaque removal and may be useful in calcified lesions. The clinical studies have been also successful in this device.

Atherectomy potentially reduces barotraumas caused by balloon angioplasty. This might reduce the restenosis rate compared to plain balloon angiogplasty. In addition the aim of atherectomy is to reduce the incidence of stenting. Considering the issue of stent fractures after SFA stenting and the problem of in-stent restenosis, any technology that improves the acute technical result of angioplasty should be beneficial.

Limitations of atherectomy are the absence of a randomised study comparing atherectomy to balloon angioplasty for SFA lesions. In order to address this unmet clinical data set a randomized trial for the SilverHawk™ is expected to begin enrolling patients towards the end of 2008. I am encouraged by the outlook of getting level 1 data to support the decision making process. Besides the use in the SFA, atherectomy might be used in the popliteal artery where one would like to avoid stenting. In addition, a clinical study with the Eximer laser for treatment of in-stent restenosis is ongoing.

The Vikings - And you thought your neighbours were a pain

Petra Mann
CIRSE Office

The word Viking comes from the Old Norse word "vikingr" meaning " those who came from the fjords". And come they did indeed; from the late 8th to the early 11th century they invaded, looted and generally bothered big parts of Europe from Spain all the way to Russia.

Some of the first things visitors to Scandinavia learn on a night out drinking are that a) they will have to re-consider their financial plans for the next 10 years and b) that you should say skål before emptying your glass. The word is allegedly derived from the word scull, as Vikings used to have the lovely habit of drinking out of their enemies' excavated craniums ("Gee, Jens, would you mind killing the Svensons? Their heads would go perfect with our china").

Legend has it that the habit of clinking glasses before drinking actually originated from the Vikings. Apparently they used to clink their mugs so hard that their beer would overflow into the other person's drink, thus making sure that he or she was not trying to poison them or at least would die in the attempt. Considering that the Vikings were probably not very popular with the neighbours (what with the looting and pillaging and all), that was not such a bad idea. You will be happy to hear that ever since then Scandinavians have stopped poisoning each other and, like many other nations, have rather specialised on self-induced alcohol poisoning.

The Vikings started their raiding extravaganza in Western Europe, where they specialised on looting monasteries, centres of wealth and population, yet badly protected. They felt free to keep the monasteries' interiors, including nuns and monks who they would hold for ransom or sell into slavery. Ethically the Vikings did not seem to have any problems with doing this kind of stuff, as their Gods demanded them to be cruel until their deaths. (I guess Vikings who were not very religious would only have to punch someone in the gut once in a while.)

Viking burial sites indicate a strong belief in an afterlife. Most Norse men were buried with weapons (just in case they met some of their former enemies in Valhalla and needed to club them over the head, although that probably does not really help a whole lot with dead people). Sometimes Vikings were buried in entire ships, as the Oseberg, Gokstad and Tune ships (all found in Norway) indicate.

Apart from the ship, the burial sites also contained things such as smaller boats, tents, sledges and riding equipment. I guess whoever was buried there was planning quite a trip around the netherworld, but why not when you are already there? Apparently these and other sites also showed that today's image of the Viking wearing horned helmets is a misconception. The image of them wearing fluffy pink wigs for their raids just doesn't have the same effect, though, does it?

Famous Vikings (other than quarterbacks)

Erik the Red

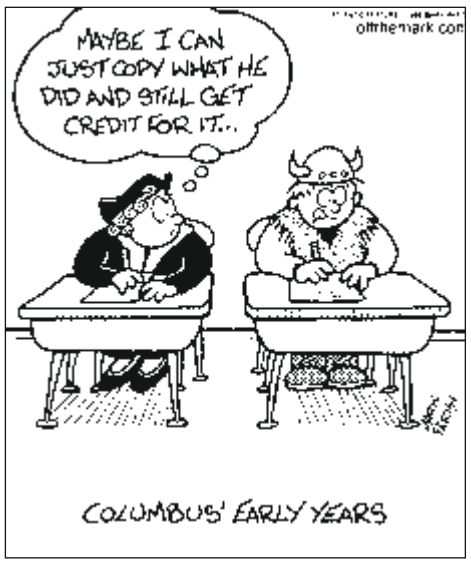
Although it is believed that old Erik was dubbed "the Red" due to the colour of his hair, my theory is that he had really bad hypertension and was pissed most of the time. Of course I have no evidence for this whatsoever, but if it's science you want, you have to flip back a couple of pages.

Erik's claim to fame was that he founded the first European settlement in Greenland (and yet more Europeans settling on distant lands without an invitation). He purposely mislead potential settlers calling the land "Greenland" to make it sound more attractive (imagine the long faces when settlers showed up there in Bermuda shorts and sun hats), hence inventing false advertising and becoming history's first marketing manager.

Leif Eiriksson

Leif Eiriksson, son of Erik the Red, is believed to have been the first European to land in America a whopping 600 years before Columbus' parents were even flirting. As is normal for European tourists coming to America for the first time, he noticed that the food there was overly bountiful and put on a couple of pounds.

Eiriksson landed in Newfoundland which he named Vinland after the wild vines growing there. Not surprisingly, he decided to over-stay his visit and started a settlement of around 150 people. After a while they realized that the arrows coming their way was not the Native Americans' way of greeting new neighbours and quite untypically for Vikings withdrew.



Harald Bluetooth

Harald Bluetooth introduced Christianity in Denmark in the 900s. His mother allegedly instilled the Christian faith in Harald, whereas his father was a devout servant of Odin, the Norse god of war and death. I guess this must have made for some pretty interesting dinner conversations. One of his greatest legacies are the Jelling Runic Stones, massive carved stones with runes celebrating Harald's conquest of Denmark and Norway and the conversion of the Danes to Christianity. Today the stones are strongly identified with the creation of Denmark as a nation state and have been declared a UNESCO World Heritage Site.

Norse Mythology - in a time before anger management

The Norse creational myths make about as much sense as anything ever produced by the US Environmental Protection Agency. Just to proof my point: the Vikings believed that in the beginning there had been a large frozen area which started to melt, the water turning into an evil frost giant called Ymir. When Ymir fell asleep, sweat dripped from his armpit and turned into a man and a woman (yuck). When more water melted, it turned into a cow which licked the salty ice, uncovering another man. The story goes on and on like this, which to me is irrefutable proof that the Vikings were familiar with psychedelic drugs. One of the peculiarities of Norse mythology (apart from people being made from sweat) is that the gods were mortal. Here is a list of the most important ones:

King Odin

Odin was the king of Norse gods, being father to most of them. His wife was called Frigg (I'm not even going to comment on this name - it's just too much for my system). Apparently Odin gave one of his eyes for more wisdom, which I believe is the first recorded account of a total rip-off. And as if that wasn't stupid enough, he then spent nine days hanging from a tree pierced by a spear in order to gain more wisdom (??). Worshipping this kind of god Odin's followers of course thought nothing of it when piercing fellow humans once in a while in order to please their idol. The most accomplished of spearers would then get to join Odin in Valhalla accompanied by the Valkyries, somewhat heavy-set warrior ladies with a questionable fashion sense.

Thor

Thor, probably the most widely known of Norse gods, stood for order and stability (as far as this was possible in Viking times). His symbol was a large hammer. Incidentally he was also the god of manliness. Being a guy, of course he had to make a lot of noise about it, which is why his chariot produced thunder whenever he rode it around Asgard. Just to make sure that everyone got the point whenever he was pissed off, he would emit lightning from a whetstone attached to his skull (It can't have been very pretty, but imagine having one of these babies when talking to your boss!)

Loki "el loco"

Although Loki was the child of two giants, he was half god, half giant, mostly responsible for tricks and mischief (I'm sure that guy could not wait to go to work on Mondays). Here are some of his more outstanding achievements: turning into a mare and giving birth to an eight legged horse (again, too much for my system), causing the death of the god of light and benevolence (I guess this is the kind of stuff you can get away with when you don't believe in hell) and initiating the general demise of the Norse deities. That guy was quite a rascal indeed.

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