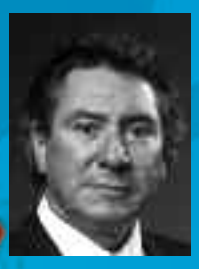
IR congress news

CIRSE 2012 - Lisbon
Saturday, September 15, 2012

*Michael J. Lee*
*CIRSE President*



*Robert Morgan*
*Scientific Programme Committee Chairman*

*Paulo Almeida*
*Local Host Committee Chairman*

# INNOVATION AT WORK ...

**Welcome to CIRSE 2012, a congress dedicated to excellence in IR! This is neatly encapsulated by our slogan "Innovation, Education, Intervention." Innovation is the key building block of the discipline, which from its earliest days has been characterised by inspired new approaches to treating acute and chronic diseases.**

## The birth of IR

1963 was an important year for radiology, due to a speech made at the first Czechoslovak Radiologic Congress by a certain Charles Dotter. The meeting, held at Karlovy Vary, was a large international event, and the many delegates present listened in awe as Dotter explained his vision of the future of radiology: ***"The angiographic catheter can be more than a tool for passive means for diagnostic observation; used with imagination, it can become an important surgical instrument."***

His words turned out to be more than wishful thinking, and in January of the following year, Dotter had the opportunity to try his theory. 82-year-old Laura Shaw presented with a non-healing ulcer and gangrenous toes. The recommendation to amputate the foot was flatly refused, and her surgeon figured if she was refusing surgery, Dotter might as well have a look at her. The reason for the injury was established to be an ideal lesion on which to perform percutaneous angioplasty, and she agreed to try it. Within minutes of the procedure, her foot was warm, blood flowed easily, her pain disappeared within a week, and the ulcer soon healed. She died 3 years later of an unrelated heart complaint, with both feet still intact.

## Growing as a specialty

This new therapy built on the previous innovations that had led to diagnostic angiography, notably the pioneering work of Sven Seldinger. He was the first to crack the conundrum of how to safely and successfully introduce a catheter into a blood vessel – a puzzle that radiologists had worked on since 1940. In 1952, a flash of inspiration urged Seldinger to try a new arrangement of the tried and failed needle-catheter-guidewire combination: needle-wire-remove needle-catheter. This deceptively simple breakthrough was to revolutionise radiology.

Dotter and like-minded radiologists continued to explore the possibilities of angioplasty, and to overcome the clinical obstacles presented. Doctors such as Melvin Judkins, Josef Rösch, Stanley Baum, Sidney Wallace and Caesare Gianturco, and many others besides, were all to bring their own innovative ideas to the table.

Dr. Judkins was the one who would make the angioplasty truly minimally invasive, as he devised and perfected the transfemoral approach, which was to largely replace the surgical cut-downs of the brachial artery which had been used for early interventions. Dr. Rösch and Dr. Baum in Los Angeles were to apply the ideas behind angioplasty to GI and biliary disorders, while Anders Lunderquist in Sweden was exploring the use of IR in pancreatic tumours.

New applications were continually being considered, and new devices were designed. Many IRs adapted existing catheters and guidewires themselves, but some more well-known IRs, such as Charles Dotter, entered into partnership with companies like Cook Medical. Others, such as Kurt Amplatz, were eventually to set up their own companies to produce their tailor-made devices.

## Gaining public acceptance

But from the public's perspective, the arrival of a Swiss cardiologist, Andreas Grüntzig, was what really brought interventional radiological procedures into the open. Grüntzig had adapted Dotter's techniques, and had developed the first balloon catheter capable of dilating peripheral arteries. In February 1978, the Lancet published the impressive results from his first five balloon cases, and the medical world responded with unprecedented warmth. His high profile and technical developments added momentum to the progress of interventional procedures.

## Excellence and Innovation

In recognition of the continuing importance of innovative approaches to IR, Prof. Rolf Günther has established an Award for Excellence and Innovation, which will be presented at today's Award Ceremony (see page 3). This year, the award goes to Dr. Amman Bolia and Prof. Jim Reekers, for their work in developing subintimal angioplasty.

Subintimal angioplasty came into being in January 1987, following Dr. Bolia's unintentional recanalisation of a long popliteal occlusion through a dissection channel, while simultaneously in Amsterdam, the same approach was being developed independently by Jim Reekers. According to Dr. Bolia, "the greatest discovery in relation to the technique was the 'loop', for it was with the help of the loop, with which one could not only extend the dissection through the length of a long occlusion, but also make a re-entry distally into a patent lumen. Therefore, the real innovation was the discovery of the loop."

For over 25 years, the technique has been refined and perfected with the help of hydrophilic and 'J' wires, to the point that TASC D lesions previously thought to be the domain of bypass surgery can now be dealt with using subintimal angioplasty. It has also been used in many other occlusions, such as flush superficial artery occlusions (SFA), long tibial occlusions, reconstitution of bifurcations and trifurcations and iliac occlusions, and has led to many spin-off inventions.

The technique has a steep learning curve, and many find it difficult to perform. Prof. Reekers suggests that further innovation may hold the key: "To overcome this hurdle, we have now developed a device for subintimal recanalisation with some engineers in Delft, which will make this technique available for all IRs".

## Continuing the Legacy of Innovation

As can be seen by the growing list of topics covered at every CIRSE meeting, innovation is still going strong, and has broadened the discipline to cover all manner of interventions, from the original vascular interventions, to encompass stroke, trauma, kidney and musculoskeletal interventions, all the way to the most fast-moving field of all: oncology.

Innovation continues to be the bread-and-butter of every good IR, and this can express itself in small ways – most usually, in the off-label use of devices. While often having excellent outcomes for patients in very dire situations, this practice is not without risks, and IRs can learn more about how to minimise complications and protect themselves from legal action by attending today's *Medico-legal issues and IR* Session in Auditorium 2.

Every year at CIRSE, we showcase the latest advances. Some of these prove to be major advances, such as irreversible electroporation; others are small improvements, or alternatives that expand the indications to include previously disqualified sub-sections of patients. But all innovations, large and small, help drive forward not only IR, but patient care as a whole.

The continued need for innovation is best explained by the great pioneer, Dr. Josef Rösch: "Present day interventionalists have a more defined clinical practice, with numerous established techniques, tools and devices to select from. Despite this, interventionalists should always be thinking about potential improvements in present procedures or developing new techniques. An innovative, creative mind must be an integral part of every interventionalist."

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# Opening Ceremony and Awards – 14:30, Auditorium 1

**Welcome to CIRSE 2012, the largest IR congress of the year! Once again, we have made every effort to put together a broad scientific programme, covering the whole spectrum of IR, and featuring some of the world's most inspiring researchers and lecturers.**

But we also strive to honour those who have served the discipline well over their careers, and who have made staggering contributions to the field of interventional radiology.

Join us today at 14:30 in Auditorium 1 for our Opening Ceremony and Awards, with entertainment provided by the internationally renowned piano soloist, Pedro Burmester.

## Welcome Address

*Michael J. Lee, CIRSE President*
*Paulo Almeida, CIRSE 2012 Local Host Committee Chairman*
*Robert Morgan, CIRSE 2012 Scientific Programme Committee Chairman*

## CVIR Editor's Medal Award

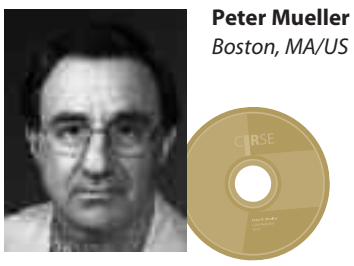
Due to a continued increase in qualifying articles, reader interest and author submissions, the editorial board have decided to honour three author groups for their outstanding contributions to CVIR.

**Safety Profile of Sequential Transcatheter Chemoembolization with DC Bead™: Results of 237 Hepatocellular Carcinoma (HCC) Patients**
*Katerina Malagari, Mary Pomoni, Themistoklis N. Spyridopoulos, Hippokratis Moschouris and Alexis Kelekis, et al.*
CardioVascular and Interventional Radiology, 2011, Volume 34, Number 4, Pages 774-785

**Superiority of Transcutaneous Oxygen Tension Measurements in Predicting Limb Salvage After Below-the-Knee Angioplasty: A Prospective Trial in Diabetic Patients With Critical Limb Ischemia**
*Ulf Redlich, Yan Y. Xiong, Maciej Pech, Jörg Tautenhahn and Zuhir Halloul, et al.*
CardioVascular and Interventional Radiology, 2011, Volume 34, Number 2, Pages 271-279

**Renal Artery Embolization Combined With Radiofrequency Ablation in a Porcine Kidney Model: Effect of Small and Narrowly Calibrated Microparticles as Embolization Material on Coagulation Diameter, Volume, and Shape**
*C. M. Sommer, N. Kortes, S. Zelzer, F. U. Arnegger, U. Stampfl, N. Bellemann, T. Gehrig, F. Nickel, H. G. Kenngott and C. Mogler, et al.*
CardioVascular and Interventional Radiology 2011, Volume 34, Number 1, Pages 156-165

## Gold Medal



**Peter Mueller**
*Boston, MA/US*

*Laudation: Andy Adam*

Peter Mueller completed his medical training at the University of Cincinnati, Ohio, USA, and his residency in radiology at Massachusetts General Hospital, Department of Radiology, Boston, USA. In 1978 he started his interventional career in the GI radiology section of Massachusetts General Hospital, joining a team that was to develop a number of non-vascular radiology procedures which are now considered routine, such as percutaneous biopsy, abscess drainage, cholecystostomy, gastrostomy, biliary drainage, benign biliary drainage and percutaneous ablation of liver and renal tumours.

Prof. Mueller's primary clinical and research interests are in biliary intervention, abscess drainage and percutaneous ablation of malignant tumours of the liver and kidney. Over the years, Prof. Mueller has been intimately involved with novel techniques such as the Brown-Mueller T-Tack for use in percutaneous gastrostomy and percutaneous gastro-jejunostomy and the Dawson-Mueller drainage catheter for fluid drainages. He has published well over 300 articles, several books and editorships, and given over 15 "named" lectures on interventional radiology. He has served on the editorial boards of many radiology journals, including Radiology, The American Journal of Roentgenology, Clinical Radiology and CVIR.

## Excellence and Innovation

*Amman Bolia*

*Jim Reekers*

The R.W. Günther Award for Excellence and Innovation in IR celebrates one of the key aspects of interventional radiology – that of innovation. It is privately funded by the R.W. Günther Foundation.

This award was presented for the first time at last year's Annual Meeting, and will this year be awarded to Dr. Amman Bolia and Prof. Jim Reekers for their ground-breaking work in subintimal angioplasty, a novel technique discovered in 1988, which has also been referred to as "temporary percutaneous bypass" (see page 1). This technique was initially met with scepticism, and its acceptance required much hard work on behalf of Dr. Bolia, Prof. Reekers and other admirers of the technique. However, it is now accepted as a useful procedure, and is the standard technique for long occlusive lesions of the SFA and in critical limb ischaemia (TASC D lesions). The technique is also applicable in long tibial occlusions, reconstitution of the bifurcations and trifurcations and iliac occlusions. Anecdotally, subintimal angioplasty has been applied in subclavian, brachial, renal, profunda and superior mesenteric artery occlusions.

This technique has a steep learning curve, but a high success rate when performed correctly, and has played an important rate in improving limb salvage rates.

## Pedro Burmester | Piano

Internationally acclaimed pianist Pedro Burmester studied with the great Helena Sá e Costa, graduating from the Conservatory of Porto in 1981 with astonishing full marks. Later, he moved to the United States, attending master-classes of the legendary pianists Vladimir Ashkenazy, Jörg Demus, Karl Engel and Tatiana Nikolayeva.

While still very young, he won awards in several competitions, including the Prix Moreira de Sá, second prize at the International Piano Competition Vianna da Motta, and the jury prize at the Van Cliburn Competition in the United States.

He began his professional career at the tender age of ten, and since then he has performed over 1,000 solo concerts, as well as accompanying orchestras and various chamber music ensembles in Portugal and abroad.

His discography includes the works of J.S. Bach, Schumann, Schubert, Beethoven and Chopin, a duo disc with Mário Laginha, and various recordings with the Metropolitan Orchestra of Lisbon.

He currently works as a professor at the School of Music and Performing Arts in Porto (his hometown), at the University of Aveiro and at the Professional School of Music of Espinho.

## Distinguished Fellow

**Götz Richter**

*Laudation: Johannes Lammer*

A native of Stuttgart, Germany, Goetz Richter went to medical school in Freiburg, completing his residency in both general pathology and radiology. In 1988, he joined the Department of Radiology at Heidelberg University, where he became a professor in 1998, and served as vice-chairman of the Department of Diagnostic Radiology from 1993-2008. Since 2009, he has headed the Department of Diagnostic and Interventional Radiology at the Klinikum Stuttgart. He has written 207 publications, 1 book edition and 51 book chapters.

Prof. Richter has pioneered numerous procedures, introducing capillary embolisation in renal tumours (1984), placing the first iliac stent in man (1987), the first renal stent in man (1988), and the first TIPSS in man (1988). Prof. Richter also performed the first EVAR in Europe at Heidelberg University in 1993. From 1990-1995, he conducted the Clinical Embosphere Pilot Study on UFE in Germany. Prof. Richter continues to be extremely active in both clinical and academic IR, focusing above all on vascular stenting and recanalisation techniques.

## Distinguished Fellow

**Małgorzata Szczerbo-Trojanowska**

*Laudation: José Ignacio Bilbao*

Małgorzata Szczerbo-Trojanowska has worked at the Department of Vascular and Interventional Radiology, Medical University Lublin since 1972, but during her training in interventional radiology, visited a number of renowned centres abroad. In 1985 she was promoted to associate professor, followed by a full professorship in 1993. Since 1995 she has been Head of the Department of Interventional Radiology at the Medical University in Lublin, and since 1999, has also been Chairman of the Department of Radiology.

Prof. Szczerbo-Trojanowska is an active member of numerous Polish and international medical societies, with a string of awards to her name, as well have having presided over many congresses and societies, including the ECR 2010. She has published over 200 papers in scientific journals, as well as serving as an editorial board member for many radiological and medical journals, CVIR among them. She is committed to education and was involved in setting up and hosting the first ESIR courses in Eastern Europe. Her main fields of interest are vascular interventions: embolisation, carotid stenting and aortic aneurysm stent grafting.

## Distinguished Fellow

**Kenneth Thomson**

*Laudation: Michael J. Lee*

Ken Thomson is Professor and Director of Radiology at the Alfred Hospital, Melbourne, where he has worked since 2000. He started his radiology training in Perth, Western Australia and finished in Christchurch, New Zealand, before becoming a Teaching Fellow at UBC, Vancouver, Canada in 1974. There he studied chest radiology, before taking up cardiovascular angiography and interventional radiology in Rochester, New York.

During his stay in North America, he developed a long-term working relationship with Bill Cook and Cook Australia. In 1977 he returned to Australia, and in 1979, founded the Interventional Radiology Society of Australasia (IRSA). In 1981, he accepted the position of Head of Interventional Radiology at the Royal Melbourne Hospital.

Prof. Thomson successfully investigated several devices with first-in-human experience. He has published over 120 articles and is one of the editors of Image Guided Intervention. He has given lectures on every continent, often performing live demonstration procedures. He has been deeply involved with many societies, notably RANZCR, the Asia-Pacific Society of Cardiovascular and Interventional Radiology and the Asian Oceanian Society of Radiology.

**Don't miss it !**
**Medico-legal issues and IR**
**Special Session**
Saturday, September 15, 08:30-09:30
Auditorium 2

# Off-label use of devices

*Interview with Tony Nicholson (EBIR)*

**Tony Nicholson**
*(EBIR)*
*Leeds General Infirmary, Leeds, UK*

*Dr. Tony Nicholson studied biochemistry, microbiology and pharmacology before switching to medicine. Following some registrar posts in medicine and surgery, Dr. Nicholson studied radiology at the University Hospital of Wales, and completed his IR Fellowship in Cardiff and at the University of California, San Diego. His broad scientific background has made him an important voice for education and clinical evidence within IR. He is a former President of the BSIR and former Dean and Vice-President of the RCR, as well as having held numerous posts within CIRSE over the years.*

*Dr. Richard McWilliams (EBIR) is an IR at the Royal Liverpool University Hospital, where he specialises in vascular interventions and clinical practice. He has previously attended CIRSE as a speaker, moderator and Hands-on Workshop instructor, and will be delivering this year's lecture on the off-label use of devices.*

**Unfortunately, Dr. Nicholson will no longer be able to attend CIRSE 2012, but his esteemed colleague, Dr. Richard McWilliams from Liverpool, will share his views and expertise on the off-label use of devices instead. Be sure to join us for an inspiring session!**

**Q: How widely employed do you estimate off-label use of IR devices to be?**

A: I believe that hardly a day goes by in any hospital anywhere in the world where devices are not used off-label. This can vary from simple things like altering the shape of a wire, to the use of a device for a purpose entirely different than it was intended for. In many cases, the operator does not realise that the device is being used off-label, and the operator may have been using it in a particular way or for a particular purpose for many years. All of this is fine and much to the patient's benefit, as long as nothing goes wrong. However, if there is a problem and the patient comes to harm, any subsequent legal action will be complicated by the off-label use.

**Q: What are the potential drawbacks and legal implications?**

A: Let us suppose an interventional radiologist is performing an endovascular stent graft procedure on a patient. The stent graft malfunctions and cannot be released, resulting in either a prolonged and far more complex procedure, or possibly open surgery. The patient does not do well. The family takes legal action. The family lawyers ideally want to sue the company – after all, it is their device that has malfunctioned. The company will naturally do all it can to defend itself and prevent that from happening. They quickly discover that the operator used a particular type of stiff wire that they do not recommend. It is a perfectly fine stiff wire and is the usual support wire used for many years by the operator. The operator doesn't realise that he has not been following the instructions for use (IFU) of the stent graft as, like most of us, he/she has ignored the small print. It is then likely that the company will defend itself by blaming the off-label insertion and release of the device. The lawyers will likely then look at the operator and the hospital where the procedure was carried out in order to get compensation for the family. Things can turn very nasty with not only the family's lawyers, but also the company's lawyers aggressively questioning the operator. The hospitals lawyers might also decide to protect the hospital by heaping blame on the operator.

Am I exaggerating and making a big deal over something that is unlikely to happen? As several recent cases in Europe and other parts of the world testify, this is not as unlikely as it may at first sound. I don't blame the company, but interventionists need to be aware of how they can protect themselves.

**Q: What are the incentives for going off-label? What positive outcomes does it have?**

A: Interventional radiologists have always been amazingly innovative and have invented many new devices and technologies. They have also used many devices for the benefit of patients in innovative ways. Innovative use of catheters, wires and other devices has got many a patient out of trouble. I remember many years ago being called to a cardiac cath lab in a hospital which did not have any IR. They had lost a catheter in the right ventricle. There was minor panic, and the cardiac surgeons were licking their lips. They had no retrieval devices in the cardiac cath lab, so using a standard support wire doubled up and an 8 Fr right coronary catheter, I managed to retrieve the catheter. I recently attended the retirement party of that particular cardiologist, who typically had no recollection of the incident!

**Q: What sort of outcomes have you had using IR devices off-label?**

A: There are many examples where off-label device use has been to the advantage of patients. The early use of Wallstents in Superior Vena Caval obstruction and the use of thrombin in iatrogenic pseudoaneurysms are two innovative techniques that have helped many thousands of patients. Both were and are used off-label.

However, I have also had to advise in several medico-legal cases where the off-label use of thrombectomy devices to clear prosthetic and native arteries has resulted in distal limb embolisation and amputation. Such cases are usually not defendable, especially if used off-label for the first time by the operator without informing the "team" or more importantly, the patient.

**Q: There is a long history of necessary experimentation in the field of IR – is experimentation an integral part of the discipline, or now that a significant body of evidence has been gathered, should further experimentation be discouraged?**

A: Experimentation remains an integral part of the discipline and in an emergency situation, spontaneous innovation without informed consent is acceptable. However, if things go wrong, a full record of the events – what was done and why – must be made immediately after the case whilst everything is fresh in the mind.

In the elective situation, there must always be a plan. If that plan includes the potential use of equipment and devices off-label, the plan must be discussed with colleagues; the hospital risk assessment team should be informed; and the patient and family must be informed. The company could be contacted and informed, but ultimately this will have no bearing on their conduct if things do go wrong. All of the above should be documented. The use of an aortic cuff to fix a surgical dehiscence in the ascending aorta is the latest example of this in my own department.

**Q: What advice would you give to young IRs who are looking to use devices experimentally – what steps should they take to ensure (a) patient safety and (b) they are legally protected?**

A: I think we should distinguish between the word experimental and innovative. The place for experimentation is in the laboratory or as part of a properly constituted trial. We are talking about the innovative use of equipment and devices to achieve specific goals for the benefit of the patient, and this is different. No patient likes to be experimented on, especially when they are sick.

As stated above, I think elective innovation requires discussion as part of the team. It requires pre-procedural documentation and a discussion with the departmental risk assessment team. The patient and family should have a witnessed discussion and explanation of why the device is planned to be used off-label. If innovation is necessary in the acute situation, the details should be documented and later, if necessary, discussed with the patient, especially if anything is to be left behind in the patient. All practitioners should know what procedures require off-label use. Thrombin for pseudoaneurysms is a good example. Documented agreement with the hospital risk department for its use should be organised.

**Q: If an IR does establish that a device is appropriate for an off-label application, what steps should they or their representative bodies take?**

A: Documentation and discussion with colleagues. A technical report perhaps. Maybe a well-organised single centre study. Ask to speak to people in authority at the company to see if they will apply for its acceptance in this situation and make it an on-label function. However, always remember that the successful use of a device or technique on just a few occasions is not a means of assessing the potential risks and complications. That will only come when a procedure has been done a thousand times! For instance, the use of endoscopic biopsy forceps has been advocated to get irretrievable IVC filters out of the cava. It has been done successfully, but has also been reported as having potentially very bad complications. Do we know the risk and benefit of trying this as opposed to leaving the filter alone? We do not and probably never will, because it is likely that not all complications will be reported. Only successes.

**Q: Can device manufacturers themselves play a role in best managing the legal/moral grey area of off-label device use?**

A: I think it is time for CIRSE, as a representative body, to enter into discussion with companies about the overly specific nature of their IFUs and to discuss the relationship between IR and the companies in this regard. After all, the companies are happy to see results published and to sell their equipment on the back of such publications, but are very reluctant to update and change their IFUs on this basis. Also when they do change their IFU, they often do so after an adverse event and do not always advertise the fact. There are multiple examples of that happening, and it leaves the operating IR in a very bad position if something goes wrong and there has been a change in IFU of which he/she is unaware. The relationship between doctor and company needs to be a two-way street and there needs to be trust.

# Thrombectomy of clotted dialysis accesses: glory and despair in prosthetic grafts, despair and glory in autogenous fistulas

*Luc Turmel-Rodrigues (EBIR)*

**Don't miss it !**
**Dialysis access management**
**Special Session**
Saturday, September 15, 11:30-12:30
Auditorium 6

**Luc Turmel-Rodrigues**
*(EBIR)*
*Clinique St-Gatien*
*Tours, France*

*Dr. Turmel completed his fellowship in the Department of Cardiovascular Radiology of Paris Broussais Hospital under Prof. Gaux. He has published numerous articles on dialysis fistula interventions in major radiology and nephrology journals. He is the main author of a textbook on "Diagnostic and Interventional Radiology of Dialysis Access", to be published in autumn 2012. He was a founding member of the French Society for Vascular Access (1992) and of the European Vascular Access Society (1999). He was the chairman of several international meetings held in Tours and Nice.*

The answers to the most frequently asked questions:

- Thrombolytic drugs are not necessary when it comes to declot a dialysis fistula or graft. Mechanical techniques are effective and more rapid.
- Fistula thrombectomy is usually a 1-2 hour outpatient procedure and immediate cannulation for dialysis is then feasible.
- Expensive thrombectomy devices are not necessary, basic manual aspiration works.
- A thrombosed fistula or graft can be declotted up to 1 month after onset of thrombosis.
- There is always a tight underlying stenosis when a native fistula clots.
- Isolated thrombosis of a needling site aneurysm may not warrant intervention.
- Thrombosis within 1 month of access creation surgery is rarely a reasonable indication for percutaneous intervention.

**Background**

Percutaneous thrombectomy of thrombosed dialysis prosthetic grafts is usually relatively easy, but every experienced interventionist has a story to tell regarding cases of native fistulas that took an inordinately long time to perform (more than 2 hours) and in the end failed.

All thrombectomy techniques may work in gore-tex grafts, given that the modest amount of thrombus (3.2 ml on average) [1], including residual thrombi after attempts at removal by more or less effective devices or drugs, can be simply pushed into the lungs, with very little (but not zero) risk of severe complications. Prosthetic grafts are thus easy to declot – this is their glory – but they are at high risk of rethrombosis within 1 month of endovascular thrombectomy (20 to 68% of grafts depending on the series) [2-10] – which is our despair...

In contrast, percutaneous recovery of thrombosed native fistulas may be occasionally punishingly long, and no amount of shortcuts or tricks can guarantee success. This may be our despair. However, once clinical success is achieved, the risk of early rethrombosis is low and long-term cumulative patency rates are high for years [11]. This is their glory.

Autogenous fistula thrombectomy is thus a task that should certainly not be entrusted to the most junior member of a team, since a high level of experience and astuteness in endovascular skills is mandatory, particularly for the management of complications, which can be serious when the AVF is branched onto the brachial artery (hand ischaemia).

**Challenges in native fistulas**

Thrombectomy of native fistulas is subject to variations in approach and technical difficulties depending on their configuration and anatomical particularities [11]. For instance, the arterialised vein diameter may be too small for access by guidewire or catheter. It may be difficult to reach the arteriovenous anastomosis because the guidewire repeatedly strays into abundant collaterals. It may be difficult to clinically locate the underlying culprit (stenosis) as it can be anywhere between the anastomosis and central veins. The venous stenosis may be long or heterogeneous, and thus difficult to cross with a guidewire. The clot burden may be substanstial (30-50 mL). Aneurysms may be sizable in number and may harbour very adherent and mummified mural thrombi. The guidewire may easily coil up in the aneurysmal sac, making it challenging to catheterise the normal vein further upstream or downstream to it. The terminal end of the radial artery may be equally thrombosed in forearm AVFs with end-to-end anastomoses, rendering thrombi disruption especially challenging.

**History**

Published clinical outcomes data suggest open surgery confers comparable results to percutaneous endovascular methods in thrombosed prosthetic grafts, but frequently poorer and often dismal results in forearm and upper arm native fistulas. The earliest publications on percutaneous thrombectomy of dialysis accesses go back to the mid '80s [12-13]. It was performed predominantly on thrombosed prosthetic grafts in tandem with prolonged urokinase or streptokinase thrombolysis.

However thrombolytic therapy had a number of shortcomings: ineffective in resistant thrombi, contraindicated in patients with recent surgery, cerebral pathologies or severe hypertension. Dialysis needling points tended to ooze incessantly. Pulse-spray thrombolysis appeared in 1989 to render infusion of thrombolytics shorter and offer a mechanical means of disrupting resistant and remnant thrombi [2]. It later became apparent that almost equivalent results could be obtained when saline was used as a propellant instead of urokinase [3].

The realisation that results were due to the mechanical effects of the spray rather than the pharmacologic effect of the thrombolytic agent was the most crucial factor. However, concerns soon arose that thrombi dislodged by the saline spray technique automatically ended up in the pulmonary circulation. These grew despite Scott Trerotola's bold assertion in 1994 that the average 3.2 mL of thrombi contained in any thrombosed gore-tex graft could be deliberately pushed into the venous outflow by a Fogarty thrombectomy catheter without triggerring any symptomatic pulmonary embolism [1]. However, the belief that iatrogenic emboli emanating from dislodged thrombi fragments were harmless soon proved erroneous, after several anectodal reports of complications (some fatal, like bronchospasm, respiratory failure, paradoxical embolic cerebral infarct and systemic septic emboli) started emerging [14-16].

In Europe, the focus of percutaneous thrombectomy was mainly on thrombosed native AVFs and, to a much lesser extent, grafts. The use of thromboaspiration as an adjunct therapy to urokinase thrombolysis was first published in 1991 [17]. Thrombolysis was soon abandoned as thromboaspiration alone was found to be equally effective in clearing thrombi [4] (Figs. 1-11). Meanwhile, a number of expensive and innovative mechanical thrombecomy devices and gadgets came on the market worldwide: Hydrolyser, Amplatz-Thrombectomy device, Angiojet, Craggbrush, Arrow Trerotola percutaneous thrombectomy device, etc. [5-10]. These devices thrived, despite the re-emergence on the scene of Urokinase thrombolysis in the form of the 'lyse and wait' technique in 1997 [17]. In this technique, urokinase is injected either blindly or under ultrasound guidance into the access just before the patient enters the interventional suite. After an hour or so of lysis, the residual thrombi are effectively pushed into the pulmonary circulation [18].

It was only in 2000 that a French series showed for the first time that autogenous accesses (in this case predominantly forearm AVFs) could be treated by thromboaspiration with a high rate of success [11]. Other groups reported around the same period that thrombosed AVFs could be percutaneously declotted by simply dilating the adjacent stenosis and allowing the thrombi to embolise into the pulmonary circulation, sometimes after disrupting them with a rotating mini-pigtail catheter, a practice certainly unthinkable and unfeasible in aneurysmal AVFs, which usually have a high thrombus volume [19-20].

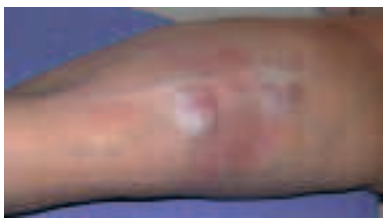


*Fig. 1: This thrombosed 4-year-old left transposed (as evidenced by the long surgical scar) radial fistula shows some aneurysmal formation in its cannulation zone, which facilitates blind cannulation.*

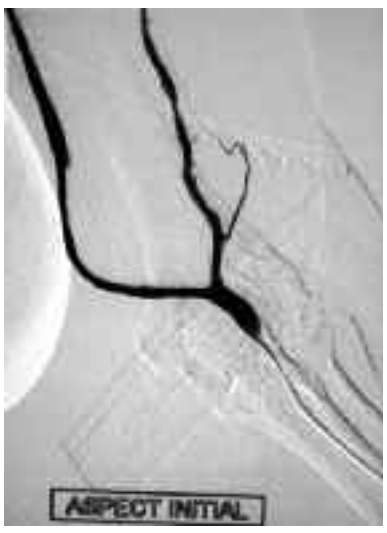



*Fig. 2: Through an antegrade cannulation of the thrombosed vein, a catheter is advanced over a guidewire into the central veins and then gradually withdrawn as small boluses of iodinated contrast are slowly and gently injected. There are thrombi seen in the arterialised vein segment from just above the elbow, whilst the upper arm cephalic and basilic veins are well opaficied and therefore remain patent.*

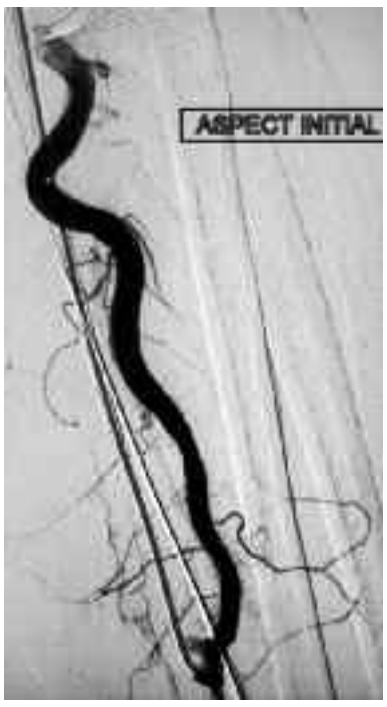



*Fig. 3: Through a retrograde puncture of the thrombosed vein, a catheter is advanced into the anastomosis. Injection of contrast there shows a patent proximal artery perfusing its distal segment.*

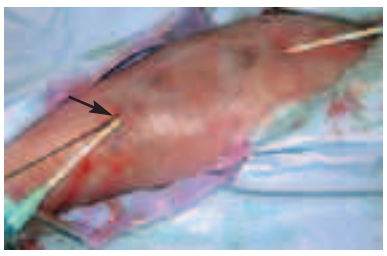


*Fig. 4: This picture shows two 8 Fr introducer-sheaths after placement in opposite direction into the thrombosed vein, with a venous 'safety' guidewire shown (arrow) coming directly off the skin puncture but alongside to the introducer sheath.*

*Fig. 5: The 50 ml Vaclok syringe locked in aspiration mode fills up with a mixture of thrombi and fresh blood.*

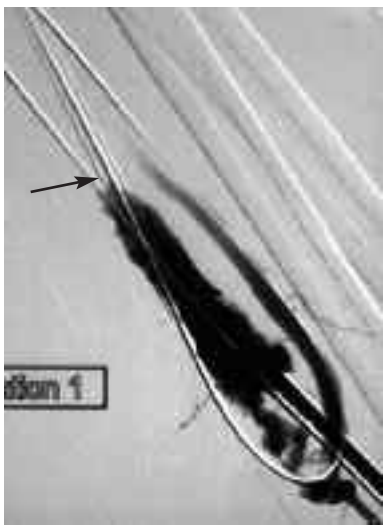


*Fig. 6: Having freed the more downstream segment of the vein of thrombi, contrast is seen to collect an outflow stenosis (arrow) which is the cause of the thrombosis. The task is now to aspirate the upstream thrombi near the anastomosis via the "arterial" introducer-sheath.*

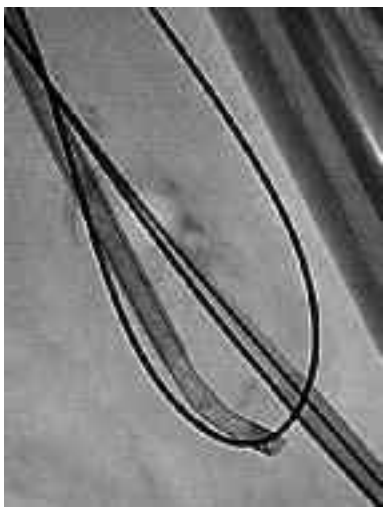


*Fig. 7: This angiogram shows the aspiration catheter in contact with thrombi near the anastomosis. The arterial 'safety' guidewire can be seen across the anastomosis with its tip in the brachial or axillary artery.*

*continued on page 7* >>

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a - refers to high specific activity

1. Hilgard, P., et al. Radioembolization with Yttrium-90 Glass Microspheres in Hepatocellular Carcinoma: European Experience on Safety and Long-term Survival. Hepatology. 2010; 52(5): 1741-1749



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# TACE and Radioembolisation: competitors or complementary?

*Thomas Helmberger (EBIR)*

**Don't miss it !**
**Hepatocellular carcinoma: the spectrum of interventions**
**Special Session**
Saturday, September 15, 11:30-12:30
Auditorium 8

According to several current, national and international guidelines for the treatment of HCC, the treatment algorithm is determined mainly by the size and number of hepatic tumours and the patient's performance conditions. Following these guidelines, an estimated 20% of patients are candidates for a locally defined removal of the tumour(s) by ablative or resecting methods including liver transplantation, since tumour load is limited and liver function largely preserved.

However, the majority of the patients will present with an advanced tumour stage, hindering sufficient tumour control by minimally invasive or surgical treatment. In these cases, transarterial techniques are mainly applied. Even though these techniques have been in use for more than 30 years, there is no general consensus on how transarterial chemoembolisation/embolisation (TACE, TAE) should be performed. In consequence, substantial data exist on TACE, but also quite a variety of technical regimens (e.g. embolisation with Lipiodol only, Lipiodol + particles, different particle sizes, lobar-, segmental-, tumour-selective administration, etc.), blurring the evidence on the therapeutic efficacy of TACE.

Nevertheless, meta-analysis of TACE studies can prove superiority over best supportive care in advanced HCC cases, and a 1-year survival rate of 85-100% in smaller tumours (< 5 cm) and at least of up to 80% in larger or multiple tumours of Child-Pugh A patients. In more advanced cases, the liver function – characterised by the Child-Pugh class (B or C), presence of ascites, and elevated bilirubin (> 3 mg/L) – and the tumour – characterised by number (≥ 3), size (≥ 5 cm), type of spread (multinodular, diffuse, bilobar, extrahepatic, portal vein invasion), and elevated α-fetoprotein (≥ 400 ng/mL) – are determining and limiting the outcome in TACE procedures negatively.

Data on transvascular radioembolisation (RE; also known as SIRT – selective intra-arterial radioembolisation therapy) in HCC have been available now for more than 15 years, showing that similar results to local thermal ablative techniques could be achieved by super-selective RE. However, in comparison to local ablation therapies including TACE, the complexity of the RE procedure in terms of radio-protection issues, handling, and costs may rank RE as not yet being the first choice in the treatment of locally limited HCCs.

Nevertheless, recent data are indicating that there could be an increasing role for RE compared to TACE, due to less post-procedural abdominal pain, less frequency of post-ablative syndrome [1, 2], reduced length of hospital stay [3], improved down-staging and increased median survival [4, 5]. In consequence, there could be an extended role for RE in patients not amenable to TACE (e.g. extended bilobar disease, multinodular disease, portal vein invasion, previously failed TACE/TAE).

Comparing TACE and RE, it seems that both ablative techniques might be complementary in targeting the same tumour stage according to different functional and performance stages of the liver and of the patient, respectively, due to different modes of operation. There is still a lack of RCTs regarding the best technique(s) in delivering TACE and RE, and the competing and complementary effects of the different components of each technique concerning embolisation (e.g. particle size) in both techniques, drug release in TACE (e.g. drug-eluting particles), local radiation doses in RE (e.g. local/focal vs. global), and optimal patient selection for TACE and RE. Furthermore, deeper insight is needed into the potential use of new drugs and biologicals (e.g. sorafinib) in combination with TACE and RE.

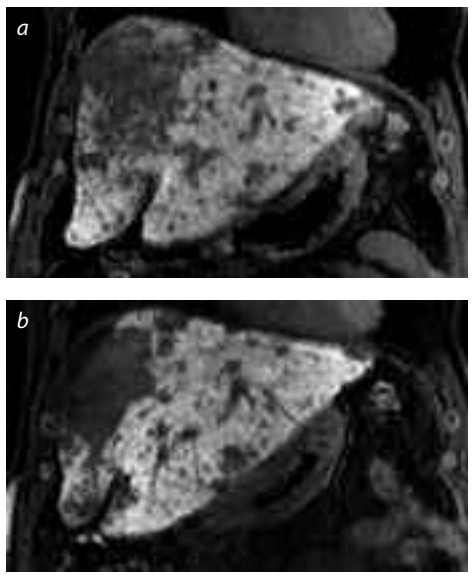


*Fig. 1: 64-year-old male patient with history of alcohol-induced liver cirrhosis and advanced multifocal, multinodular HCC (Child-Pugh A, BCLC stage C). CE-MRI (Gadoxetic acid hepatacytic phase) (a) prior to RE; (b) 3 months after RE (2,2 GBq, approx. ¾ of the dosage to the right, ¼ to the left liver lobe: partial response in terms of reduced number of tumours, reduced perfusion, and secondary hypertrophy of the left liver lobe).*

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**>>** Thromboaspiration remains the main percutaneous method of declotting thrombosed AVFs in France, despite the emergence of other mechanical techniques worldwide. The Arrow-Trerotola device and the Angiojet are the currently preferred devices in the US.

**Contraindications to percutaneous thrombectomy**

Temporary contraindications include fluid overload and severe hyperkalemia > 6 mmol/L.

Access infection (much more common in prosthetic grafts) is an absolute contraindication to thrombectomy. An indurated tender skin segment over a thrombosed AVF may indicate more an inflammatory process (thrombophlebitis) rather than infection.

Relative contraindications include accesses of less than 1 month old, significant cutaneous necrosis, AVFs which have never successfully been needled, AVFs which have recently undergone surgical revision (less than a month), the presence of large aneurysms on the arterialised vein (> 5cm in diameter), and a right-to-left shunt in the form of patent foramen ovale (a rare occurrence in adults). Severe respiratory failure is considered a relative contraindication to percutaneous thrombectomy, due to the risk of pulmonary embolism, which can further compound an already compromised respiratory reserve.

A thrombosed fistula can be declotted up to 1 month after onset of acute thrombosis. However, the fresher the clots, the easier the thrombectomy is.

Heparin (on average 3000 IU per dose) and prophylactic antibiotics (e.g. Cefazolin 1g) are administered intravenously before start of every single procedure. Heparin inhibits bronchospasm associated with iatrogenic pulmonary emboli. Antibiotic prophylaxis reduces the likelihood of severe sepsis arising from septic emboli dislodged from infected mural thrombi or breach in aseptic precautions.

*Fig. 8: This angiogram after additional aspiration does not show evidence of residual thrombi. The stenosis can now be dilated.*

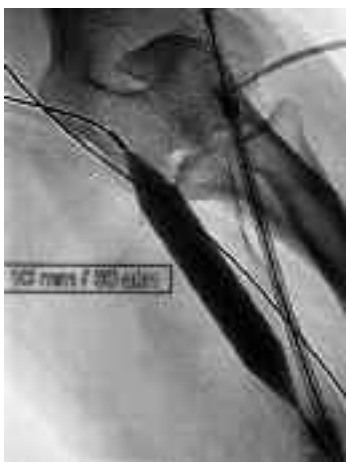

*Fig. 9: The stenosis is dilated with a 10 mm Conquest® balloon at inflation pressure of 30 atm.*

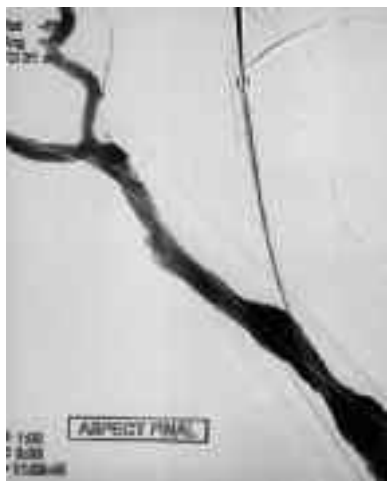

*Fig. 10: The completion angiogram of the venous outflow is satisfactory after dilation.*

*Fig. 11: Completion angiogram of the anastomosis however shows a remnant thrombotic plaque which should be left alone, given it is less likely to detach, embolise downstream and cause early access rethrombosis.*

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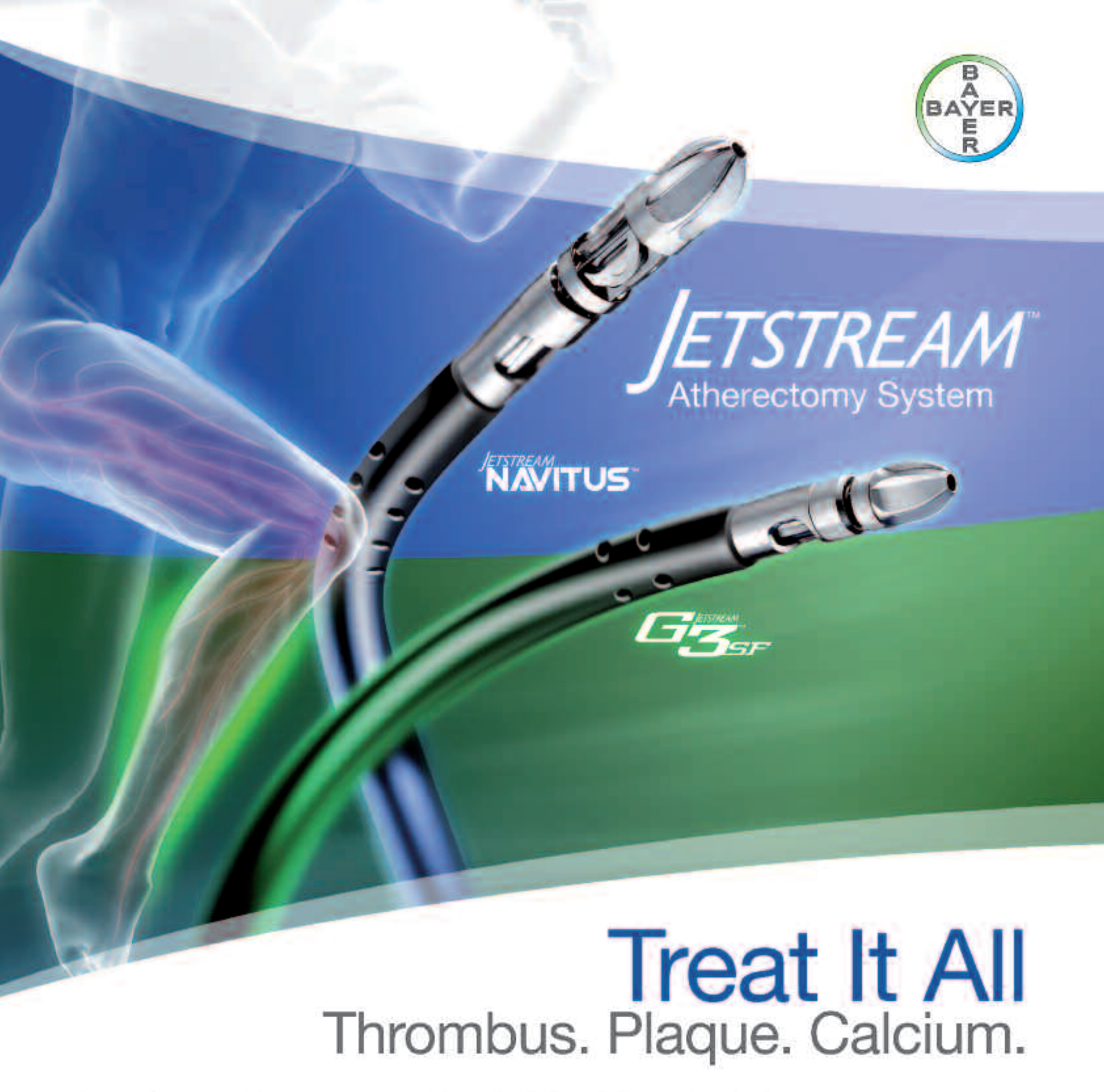


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# Paediatric percutaneous nephrostomy and ureteric interventions

*Belarmino J. Gonçalves*

**Don't miss it !**
**Paediatric Interventions**
**Special Session**
Saturday, September 15, 10:00-11:00
Room 3A

Urologic interventions are now performed in the majority of centres by urologists. But some specialised Interventional Radiology Units have kept their skills over time. We have to remember that patients benefit from a multidisciplinary team, concerning both the complexity of the proposed interventions and the ability to manage challenging cases. Angiographic skills allow the interventional radiologist to "deal" with the kidney and the ureter as a vessel, performing such techniques safely and without complications. For example, we can access the non-dilated system easily and following a correct technique. Paediatric patients also have a different ap-proach according to the disease condition.

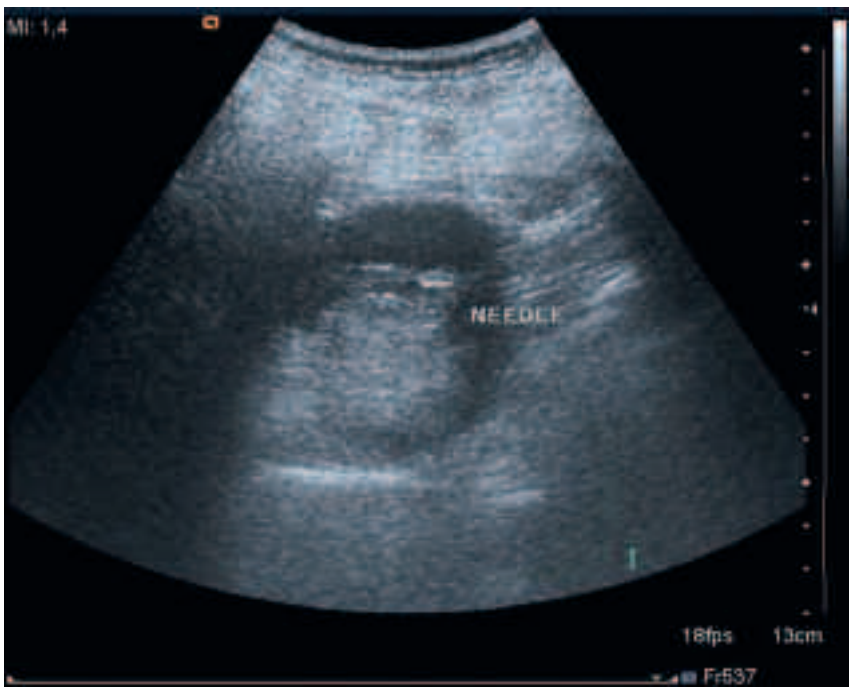


*Fig. 1: Percutaneous Nephrostomy: needle tract puncture of a non-dilated pelvicalyceal system.*

**Percutaneous Nephrostomy**
The majority of nephrostomies are performed in a dilated kidney with significant degree of obstruction, depending of the kidney function impairment or infection. In these cases, easy access is obtained using US-guided puncture through a distended calyx. But in some proble-matic cases, such as the presence of a urinary fistula (vesicovaginal, vesicorectal, uretrovagi-nal, ureteroenteric or ureterovaginal) or a low degree of obstruction, calyceal kidney punc-ture may be challenging. In the available litera-ture, the success rate ranges from 80-95%. Usually it can be initially made by US-guidance with a tri-axial introducer kit (including a 22 G Chiba-type needle, a 0.018'' guidewire and 6 Fr tri-axial catheter). In a second step, fluoro-guid-ance with contrast agent injection in the calyceal system is useful to dilate and confirm correct needle position and to avoid multiple punctures. An alternative technique is to inject air to distend the renal pelvis. A diuretic drug may also be used to induce a transient calyceal dilatation, but is usually not necessary. After the insertion of a 6 or 8 Fr "pig-tail" catheter with the tip in the renal pelvis, the urinary flow is diverted outside or from a fistulous tract.

Some authors report the use of CT-guidance, which might be useful to obese patients and when an ectopic kidney is present. Haemorrhage is the most frequent complication, but usually is mild and self-limited. Catheter replacement is done every 3 months to avoid bacterial con-tamination and urinary tract infection.

**Ureteral stenting**
Besides the former indication, percutaneous nephrostomy may also be used for ureteric stent placement. In malignant cases, ureteral

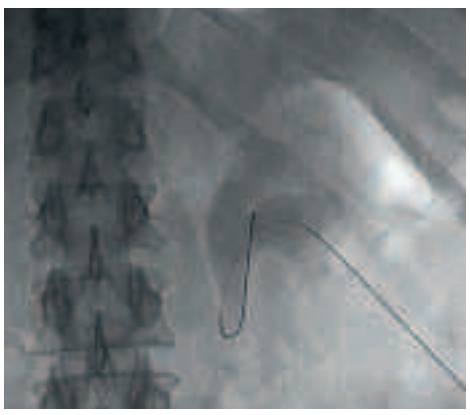

*Fig. 2: Percutaneous Nephrostomy: 0.018" guidewire advanced through a dilated pelvicalyceal system.*

stenting may be useful to improve patient life quality or relieve pain, despite of the overall survival potential benefit. In cases of haemorr-hagic cystitis, ureteric encasement or non-func-tional bladder (e.g. neurogenic or infiltrated), JJ stent insertion is not usually useful and kidney function has no significant improvement. In usual cases, stenosis or occlusion is surpassed and a J catheter is placed. The catheter is nor-mally replaced every 3 or 4 months. In our long-term experience, a 6-month replacement increases the rate of urinary tract infection.

Malignant obstructions and benign chronic stric-tures of the surgical ureteric anastomosis can be treated. Tight distal ureteric strictures can be one of the most challenging to cross, even from above the obstruction (by nephrostomy access). Sometimes special guidewires (0.014'' or 0.016''), low profile angioplasty balloon-ca-theters or microcatheters might be needed. After balloon ureteroplasty, a JJ stent can be in-serted to re-establish the normal urinary flow.

For relapsing urinary stenosis and to avoid JJ stent substitution, some studies report the use of permanent metallic stents with good paten-cy rates. The main limitation of those studies is the short follow-up period.

A good US and fluoro-guided technique with an appropriately high-quality material selection is always advised for urinary interventions, especially for children. Angiographic vascular and biliary interventional training might also be helpful to perform several techniques and without complications. The use of other stents than the JJ stent, such as metallic and/or cover-ed stents, requires further studies and a longer follow-up, but may be applicable for selected cases. A multidisciplinary team of interventional radiologists, urologists and nephrologists as-sures high technical success rates, low compli-cation rates and a reduction in costs.

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*Porto, Portugal*

*Dr. Belarmino Gonçalves is an IR at Portugal's foremost oncology institute, where he is the Angio-graphy Section Chief of the Department of Inter-ventional Radiology. His department specialises, naturally, in oncologic interventions, as well as other hepato-biliary and musculoskeletal inter-ventions, and haemodialysis access.*
*Dr. Gonçalves and his colleagues have recently conducted a 4-year study into the use of ePTFE/FEP-covered metallic stents in the treat-ment of biliary anastomotic stenosis and fistulae, which he presented at this year's SIR meeting in San Francisco. Dr. Gonçalves is a Member of the Local Host Committee for this year's CIRSE Annual Meeting.*

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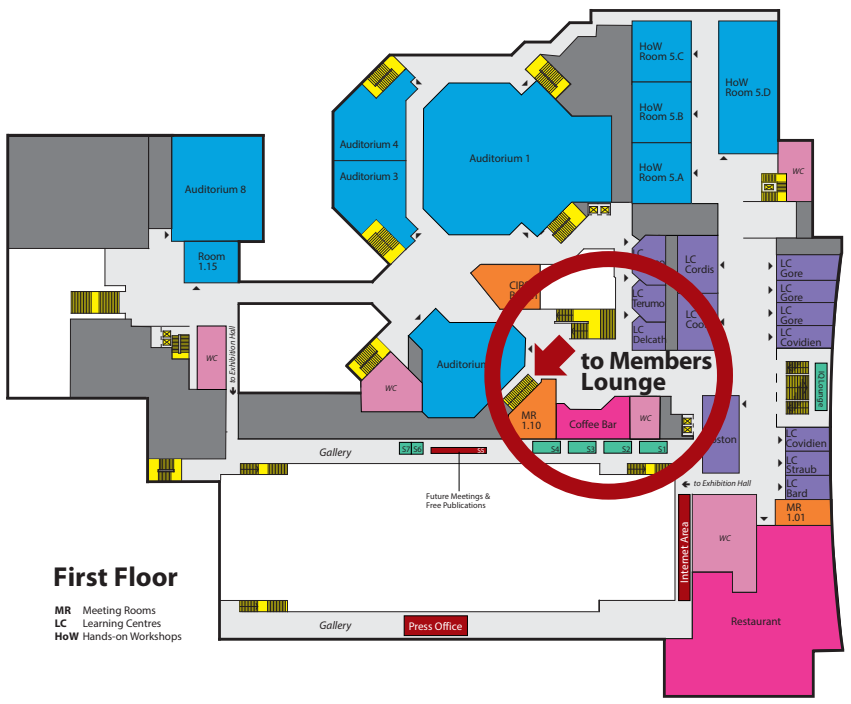
# Members' Lounge

## As a special service to members, CIRSE is offering a Members' Lounge at Lisbon 2012.

**All CIRSE members are invited to take a rest, have some complimentary snacks and make use our wireless internet connection.**

**The entrance to our exclusive Members' Lounge is located on the first floor, opposite the Society Booth.**



Advertorial

# An Interview with Stacy Enxing Seng, President, Covidien Vascular Therapies

**Q: What is Covidien Vascular Therapies' strategy for outperforming the market?**

A: As a global business, Covidien Vascular Therapies aspires to be the clear first choice for our customers, employees, investors and business partners by delivering breakthrough innovation in the treatment of vascular disease worldwide. We work hard every day to achieve this goal by staying focused on the technologies and initiatives that our physician customers tell us are vital to achieving the best possible outcomes for their patients.

Vascular Therapies is growing rapidly, and to build on our momentum, we need to continue embracing and investing in the collaborative relationships that we have with medical professionals around the world. By continuing to listen to the medical community and observing them in action, we can deliver game-changing products, supported by solid clinical evidence, that address unmet needs. By staying this course, I strongly believe that we will transform our business into the leading vascular company worldwide.

**Q: What distinguishes Covidien in the highly competitive vascular market?**

A: We not only have the right combination of talent and technology at Covidien, we are also focused on common and often compassionate goals. The result is an energized and empowered community of out-of-the-box thinkers who are also practical problem solvers – all clearly motivated by the opportunity to have a profound and positive effect on patients' lives. It's impressive. And this is not just happening in research & development and sales and marketing – it's what drives our entire organization.

At Covidien, we offer a diverse yet complementary range of technology solutions to treat vascular disease, including deep vein thrombosis, chronic venous insufficiency, dialysis access, peripheral vascular disease and neurovascular disease. We are always looking to grow our leadership position in the businesses we are in today, while laying the groundwork for tomorrow to lead in new and emerging areas, such as hypertension and ischemic stroke treatment.

**Q: What emerging market trends will be a focus for Covidien in the coming years?**

A: We are particularly excited about the vascular treatment of hypertension as a procedure that can be conducted by the interventional cardiologist, vascular surgeon and interventional radiologist. To meet this widespread and growing public health need, we entered the hypertension market with the OneShot™ Renal Denervation System for the treatment of drug resistant hypertension, a devastating condition affecting millions of people worldwide. As a recognized leader in radiofrequency ablation technology, we saw this as an opportunity to leverage our technical expertise to provide the market with a unique way to address hypertension.

We will continue to ensure that the products and services we develop and provide are clinically relevant and economically beneficial. Our customers are under ever increasing pressure to justify the procedures and products they use, whether they are physicians in a small private practice or hospitals in a large healthcare system. Our responsibility is to make sure that Covidien products are economically valuable, while helping customers provide the highest standard of care.

**Q: What new products and technologies can we expect from Covidien in the next 12 to 18 months?**

A: Covidien recently launched the Viance™ Crossing Catheter and Enteer™ Re-entry System, which offers a new way to treat chronic total occlusions (CTOs) in peripheral arteries. These innovative products will complement our peripheral vascular procedural support portfolio with tools that support the endovascular treatment of peripheral arterial disease.

We are entering the CTO market for the first time. Our new products take a unique approach, leveraging physician skill and finesse rather than the use of force or expensive capital equipment.

Advertorial

# First Patient Treated With TANDEM™: A New Option For Drug-Elutable Microspheres

*PD. Dr. Boris Radeleff, MD, EBIR*
*University Hospital of Heidelberg, Germany*

**Introduction**
CeloNova Biosciences recently launched Embozene TANDEM™ Microspheres, which are capable of loading Doxorubicin or Irinotecan up to 50 mg per ml microspheres. Embozene TANDEM™ Microspheres are commercially available in 2 ml or 3 ml syringes and in sizes of 40, 75 or 100 µm.

After the CE mark was obtained, the first patient was treated with TANDEM™ particles by Dr. Radeleff and his team at the University Hospital of Heidelberg, Germany. The Hepatocellular Carcinoma (HCC) patient was treated with 100 µm TANDEM™ microspheres, loaded with 150 mg Doxorubicin in 3 ml of particles.

**Patient preparation**
Embozene TANDEM™ 100 µm microspheres (3 ml) were loaded with doxorubicin at the university's pharmacy and immediately transferred to the angio suite to treat the HCC patient. There, the doxorubicin loaded microspheres were mixed with 8 ml of contrast agent, Imeron 300 (Bracco Altana Pharma, Konstanz, Germany) before injection.

The pre-interventional patient management procedure included an IV line, saline infusion, EKG, pulse oximetry and blood pressure monitoring. The following medications were administered:
- 25 mg of Pethidine (pain management)
- 20 mg Buscopan (spasmolytic)
- 4 mg Ondansetron (antiemetic)

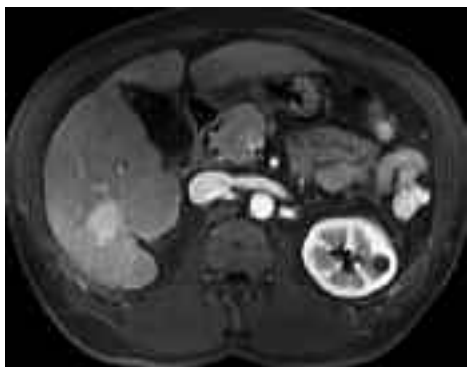


*Fig. 1: MRI depiction of a 4,5 cm, hypervascularized HCC nodule in the arterial phase using the liver-specific contrast medium Primovist (Bayer Vital, Germany).*

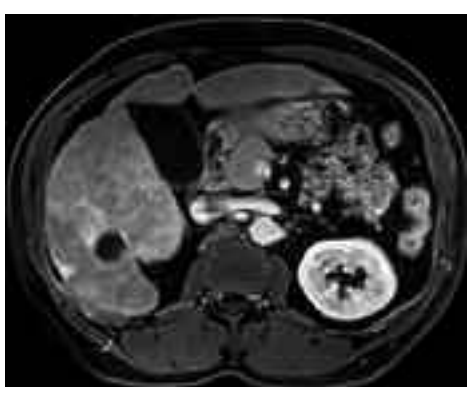
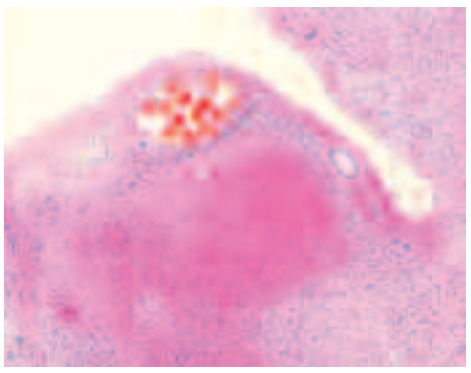


*Fig. 2: After 14 days, in the follow-up MRI, we found a complete devascularized HCC nodule in the arterial and venous phase without vital tumor using the liver-specific contrast medium Primovist (Bayer Vital, Germany).*

**First TANDEM™ patient**
This patient, a 48 year old male (175 cm, 78 kg) with HCC in segment VII due to chronic Hepatitis C was treated with TANDEM™. The patient's case was discussed at the tumor board on March 22, 2012 and had a baseline MRI on April 4, 2012.

**Conclusion**
Our first experience with 100 µm TANDEM™ Microspheres demonstrated:
- The loading of the doxorubicin in our university pharmacy was easy and efficient.
- The application of the TANDEM™ Microspheres through a 2.8F microcatheter was effortless and similar with our previous experiences with the bland Embozene.
- No relevant post-embolization syndrome under standard IV medication (we observed light fever and shivering, but no nausea or vomiting).
- No adverse events pre or post intervention.

The devascularization in the follow up MRI of the patient after 14 days (figure 3) was exactly what we expected and gives us a good and safe feeling for the planned TANDEM-TACE in the future.



**The first histological TANDEM™ results:**
This histological slide shows TANDEM™ loaded with doxorubicin (red). The microspheres adequately filled this small artery and show no sign of deformation. Observe the pseudo lobular parenchymal necrosis with intraparenchymal bleeding adjacent to the embolization particles.

**TANDEM™ Microspheres Reference Numbers:**

| Size | 2ml Syringe | 3ml Syringe |
|---|---|---|
| 40 ± 10 µm | 10420-TS0 | 10430-TS0 |
| 75 ± 15 µm | 10720-TS0 | 10730-TS0 |
| 100 ± 25 µm | 11020-TS0 | 11030-TS0 |

To order Embozene TANDEM™, please contact your local CeloNova representative, or visit **www.celonova.com**
Embozene TANDEM™ is not currently available in the US.

# Angioplasty of transplant renal artery stenosis

*Jan Peregrin (EBIR)*

**Don't miss it !**
**How to manage renal transplant complications**
**Special Session**
Saturday, September 15, 08:30-09:30
Auditorium 6

The incidence of transplanted kidney artery stenosis (TRAS) is reported in the range of 1-23% [1-5], and the number of positive diagnoses increased with introduction of duplex sonography, CT angiography [6] and MR angiography [7], as even asymptomatic patients are now diagnosed [8]. The wide range of reported TRAS incidence is most likely influenced by non-standard definition of the haemodynamic significance of TRAS [9, 10]. Reported causes of TRAS are as follows: surgical failure, graft type (higher TRAS incidence is reported in paediatric cadaverous kidney donors [11, 12], although not all authors confirm this situation [13]), immunological causes [9, 14], CMV infection [15, 16], and progression of the recipient atheromatous disease proximally to the graft artery anastomosis (Fig. 1) [17]. It was repeatedly documented that patients with TRAS have not only worse graft survival, but also overall survival rate [14, 18]. For many years, angioplasty (PTA) has been considered a method of choice in TRAS treatment [9, 19, 20]. In the majority of cases, TRAS responds well to balloon dilatation (in recent years more frequently combined with stent placement).

Diagnosis of TRAS is usually based on Doppler ultrasound examination and MR angiography, and rarely on CT angiography (contrast medium load). Digital subtraction angiography remains the diagnostic gold standard, but it should be performed only when – in case of a positive result – immediate endovascular intervention is planned.

The technique of the procedure depends on the technique of the transplantation. In the graft arterial anastomosis of end-to-side type to the external iliac artery, the approach from the ipsilateral femoral artery is usually used (Fig. 2), except in cases where the graft artery, has very acute caudal angulation where a contralateral approach is necessary. In cases of end-to-end anastomosis to internal iliac artery, a contralateral ("crossover") approach is most frequently used. A simple balloon dilatation is usually employed as a primary measure, followed by stent placement in the case of suboptimal outcome or complication (occlusive dissection) (Fig. 3). Some authors use primary stenting, but there are no randomised data confirming the superiority of primary stenting over plain balloon angioplasty with selective stent placement [21, 22]. There are no reports on the use of drug-eluting stents or protection devices during TRAS angioplasty.

Medication before and after angioplasty does not differ from that for native kidney PTA (anti-aggregation using combination of Plavix and ASA before and after the procedure and Heparin 3000-5000 units during angioplasty). The amount of contrast medium used should be as low as possible and the patient should be well hydrated to avoid contrast-induced nephropathy (in patients with impaired graft function especially).

The technical success rate of TRAS angioplasty is reported as 70-90%, with a low complication rate and a restenosis rate of 10-12% [20-26].

Clinical results of TRAS angioplasty are reported in several papers. The majority of these are dedicated to hypertension treatment and the authors generally agree on the fact that in some of the patients, the blood pressure decreases after successful PTA, but in almost none of the cases is blood pressure normal without the medication. However, the results are difficult to compare due to non-standard methods of evaluation [20, 27]. Nevertheless, it is necessary to remember that hypertension in patients with a kidney transplant increases the risk of cardiovascular disease and plays a role in chronic graft dysfunction progression [28].

Despite the fact that hypertension remains the most frequent indication to graft artery PTA, it is repeatedly confirmed that successful angioplasty can favourably influence failing graft function [9, 14-18]. Besides that, it was shown that patients with untreated TRAS have poorer graft survival associated with poorer patient survival as well [14]. In some papers, it is reported that successful TRAS PTA can restore the kidney function even in the dialysed patients with complete graft failure [18].

Complications of graft artery PTRA are most often "classic catheterisation" complications (groin haematoma, bleeding, and false aneurysm). Graft function impairment caused by angioplasty is not frequent and usually caused by contrast-induced nephropathy rather than graft artery damage or distal embolisation [20, 22, 26]; occlusive dissections reported in the past are now solved by stent placement.

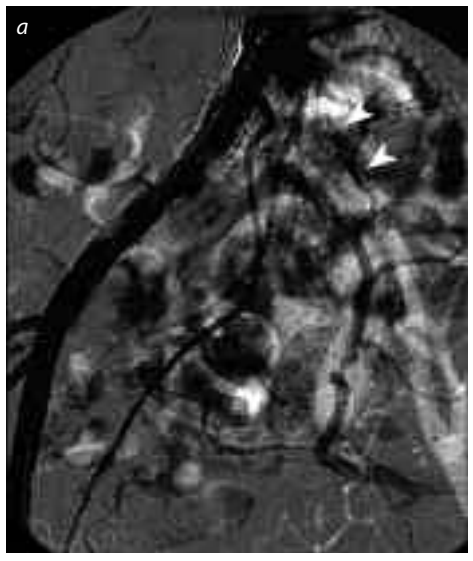



*Fig. 1a: Occlusion of common iliac artery proximally to the graft artery origin (arrowheads) resulting in graft function failure.*

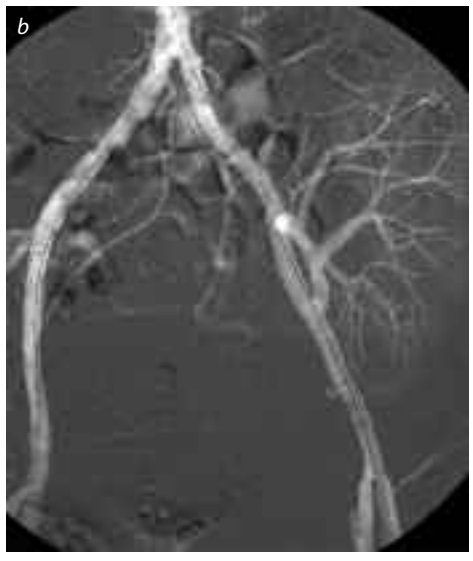
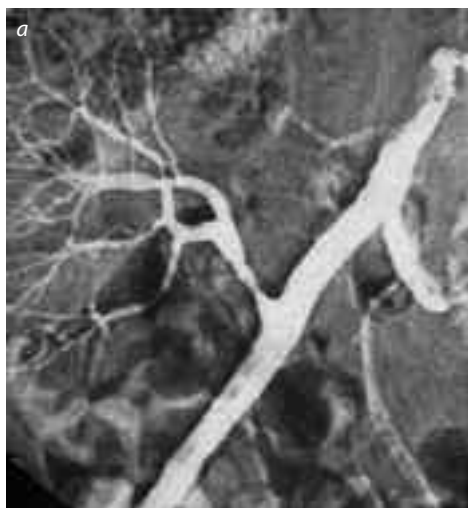



*Fig. 1b: After common iliac artery recanalisation and restoration of flow to the graft, its function returned to normal.*


*Fig. 3: Stenosis of graft artery next to end-to-side anastomosis (a, b), with slow development of graft function. The stenosis responded poorly to balloon dilatation (c). A balloon-expandable stent was placed into the stenosis and fully opened the graft artery (d).*



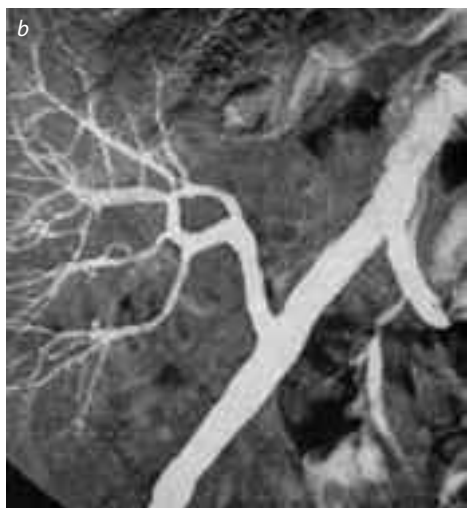




*Fig. 2: Stenosis of the graft artery next to the end-to-side anastomosis (a) resulting in hypertension and graft function impairment. Balloon angioplasty removed the stenosis (b), the hypertension was better controlled and the graft function improved.*

**Jan Peregrin**
*(EBIR)*
*Institute for Clinical and Experimental Medicine (IKEM)*
*Prague, Czech Republic*

*Prof. Jan Peregrin is an IR at Prague's Institute for Clinical and Experimental Medicine, where he has served as Head of the Department of Diagnostic and Interventional Radiology since 1991. He held the role of CIRSE President from 2009-2011, and is currently a Trustee of the CIRSE Foundation, where he serves as Chairperson of the Advisory Council. Prof. Peregrin has been a keen advocate of IR both locally and internationally, and has hosted many IR educational courses in Prague. He has written more than 170 scientific and educational papers, and has served on the Editorial Board of CVIR, Česká Radiologie and Cor et Vasa.*

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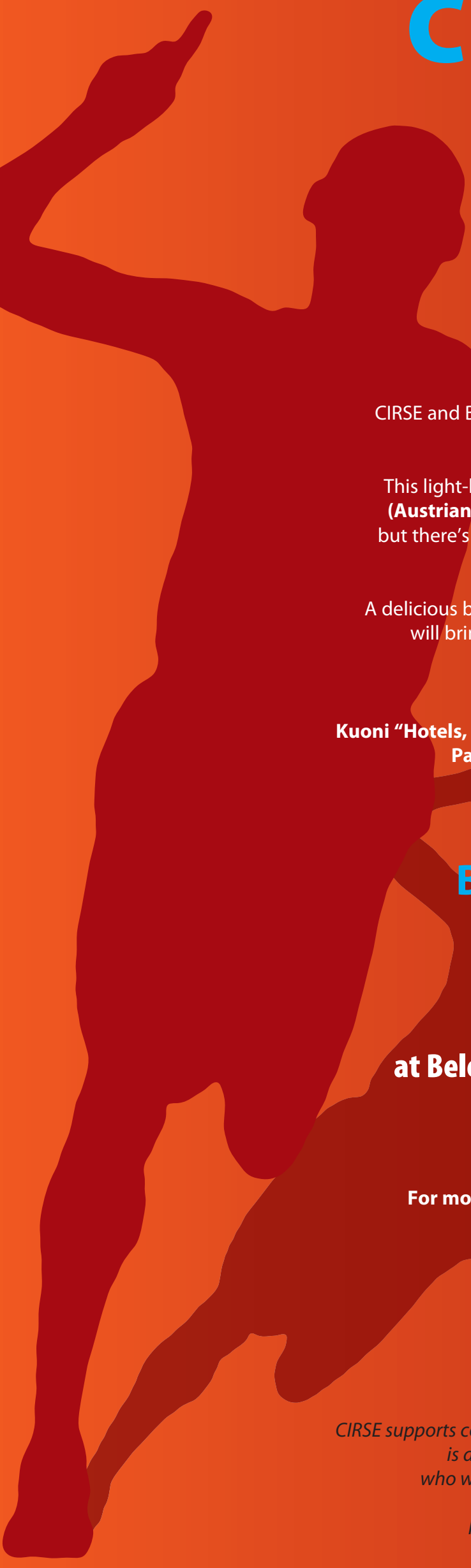
BTG

# CHARITY RUN
at
# CIRSE 2012



## Go an extra 2 miles for children with cancer!

CIRSE and Biocompatibles invite you to take part in the **BTG Charity Run and Football Cup** on **Saturday, September 15, at 19:00.**

This light-hearted evening event will be in aid of the **Österreichische Kinder-Krebs-Hilfe (Austrian Childhood Cancer Organisation)**. Our football teams are all ready for kick-off, but there's still plenty of room for cheerleaders, and last minute entrants to the Charity Run are most welcome!

A delicious buffet of snacks and drinks will be provided from 19:45 onwards, and shuttle buses will bring you from the congress centre to the sports arena, and from there to some central points in the city following the event.

**Anyone wishing to join the 3.2 km Charity Run can sign up at the Kuoni "Hotels, Tours & Social Events" Stand located in the entrance hall of the congress centre. Participants in the Run are requested to donate a minimum of EUR 10 in aid of our chosen charity.**

## Be sure to join us for an evening of sport and socialising!

**Saturday, September 15, at 19:00**
**at Belenenses Stadium (Estádio do Restelo, 1449-015 Lisbon)**

*Shuttle buses leave from outside the Congress Centre Entrance at 18:40!*

**For more information please visit www.cirse.org or contact us at info@cirse.org**

Kinder - Krebs - Hilfe

*CIRSE supports compliance with ethical standards. Therefore, CIRSE emphasises that the present invitation is directed to participants of CIRSE 2012 and recommends that the participants who want to take part in the BTG Charity Run and/or Football Cup shall bear any and all costs in this context (including donations) themselves. Kindly note that participation in the BTG Charity Run and/or Football Cup is NOT included in the CIRSE 2012 registration fee!*

# Defining Treatment Algorithms for Acute Stroke

*Ethem Murat Arsava*

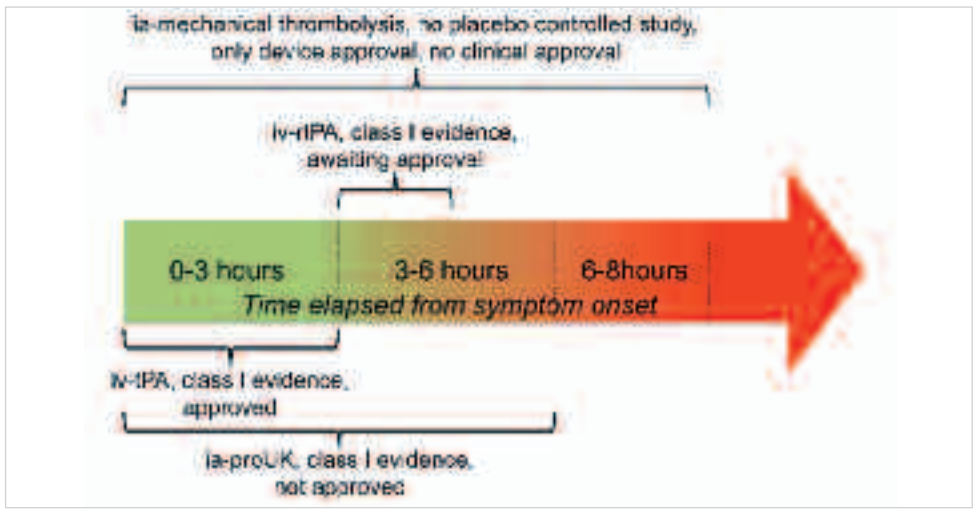
**Don't miss it !**

**Basics of acute stroke management: from diagnosis to treatment**
**Special Session**
Saturday, September 15, 10:00-11:00
Auditorium 2

Treatment algorithms in the acute stroke setting are conventionally tailored according to time elapsed between symptom onset and hospital admission. In patients presenting within 3 hours of symptom onset, systemic thrombolysis by intravenous recombinant tissue plasminogen activator (rt-PA) can be administered unless there is a contraindication to the therapy. Intravenous rt-PA, which is currently the only approved treatment for acute ischaemic stroke, given at a dose of 0.9 mg/kg (10% given as a bolus, remainder given over 1 hour, maximum dose 90 mg) within 3 hours of symptom onset has been shown to significantly improve functional outcome at 3 months when compared to placebo [1]. Meta-analysis of randomised trials of intravenous rt-PA (NINDS, ECASS-I, ECASS-II, ATLANTIS) show an absolute increase of ~12% in the number of patients achieving a modified Rankin Scale between 0 and 2 with intravenous rt-PA treatment compared to placebo [1]. Systemic thrombolysis is still beneficial when administered between 3 to 4.5 hours after symptom onset [2]; however use of rt-PA in this time window awaits approval from major medicinal agencies.

Unfortunately, only less than 5% of patients with ischaemic stroke can be treated with intravenous rt-PA in the real-world setting. Furthermore, effectiveness of intravenous thrombolysis is poor in patients with proximal arterial occlusions; rt-PA establishes recanalisation in less than 25% of patients with internal carotid artery or middle cerebral artery occlusion [3]. Intra-arterial thrombolysis is an attractive therapeutic option in such patients. The only prospective randomised trial that tested the efficacy and safety of intra-arterial thrombolysis was the PROACT-II trial, which compared intra-arterial prourokinase plus heparin with heparin alone in ischaemic stroke patients secondary to middle cerebral artery occlusion admitted within 6 hours of symptom onset [4]. 40% of patients in the prourokinase arm had a modified Rankin scale of 0-2 at 3 months, while only 25% of the patients in the heparin-only arm had such a favourable outcome. Despite these results, the treatment was not approved by FDA and intra-arterial prourokinase did not become a standard of care in patients presenting within 6 hours of symptom onset. Until now, no placebo-controlled trial has evaluated the use of intra-arterial rt-PA or mechanical clot retrieval devices in acute ischaemic stroke. However, the MERCI clot retriever®, the Penumbra system® and Solitaire™ device have been approved by FDA as devices for clot removal from cerebral blood vessels, based on their efficacy and safety in patients with large vessel occlusions presenting within 8 hours of symptom onset. Despite their approval and widespread use, we still do not know whether these devices, used alone or bridged to intravenous thrombolytics, improve patient outcome or not.

Intravenous rt-PA is the standard of care for all eligible ischaemic stroke patients presenting within 3 hours of symptom onset. The selection of patients that should be treated by systemic thrombolysis is clearly outlined in the current acute ischaemic stroke management guidelines [5]. On the other hand, selection of patients for intra-arterial thrombolysis is a challenging process. A number of clinical or imaging criteria are currently used to guide clinicians to identify patients that could benefit from intra-arterial thrombolysis, though no level I evidence is present for the efficacy of this treatment in such patients (Fig. 1):




- Patients with acute ischaemic stroke presenting within 3 hours of symptom onset, but who have contraindications for systemic thrombolysis might be considered for intra-arterial thrombolysis.
- The site of arterial occlusion is a key factor in the decision algorithm for intra-arterial thrombolysis. This therapeutic option is considered for patients with proximal arterial occlusions and high clot burden, like internal carotid artery, middle cerebral artery stem and basilar artery occlusions. As there is currently no randomised trial comparing the efficacy and safety of intravenous thrombolysis vs. intra-arterial thrombolysis, it is unknown whether patients with proximal arterial occlusions should be directly taken to the angiography suite even if admitted within 3 hours of symptom onset. However, bridging of intra-venous and intra-arterial thrombolysis can always be considered as an option in such patients.
- Aside from arterial status, the presence of salvageable brain tissue is critical to attain maximum benefit from intra-arterial thrombolysis. The presence of clinical-diffusion mismatch, diffusion-perfusion mismatch or CBV-MTT mismatch can be used to identify patients with significant amount of ischaemic penumbra that might be salvaged by re-canalisation and reperfusion. In addition, the amount of brain tissue that has already undergone irreversible damage might be a critical factor in deciding to proceed on with intra-arterial thrombolysis.

**Ethem Murat Arsava**
*Department of Neurology, Faculty of Medicine Hacettepe University, Ankara, Turkey*

*Dr. Ethem Arsava is Associate Professor of Neurology at Hacettepe University in Ankara. Although he works primarily as a neurologist, he has also spent time working in the Department of Radiology of the AA Martinos Center for Biomedical Imaging in Massachusetts General Hospital, Boston, USA, and is intimately familiar with neurological imaging. Dr. Arsava has been author or co-author of 37 published papers, with 341 citations. These papers have been published in a wide range of journals, including Neurology, Stroke and Lancet Neurology.*

**References:**
1. Hacke W, Donnan G, Fieschi C, Kaste M, von Kummer R, Broderick JP, Brott T, Frankel M, Grotta JC, Haley EC Jr, Kwiatkowski T, Levine SR, Lewandowski C, Lu M, Lyden P, Marler JR, Patel S, Tilley BC, Albers G, Bluhmki E, Wilhelm M, Hamilton S; ATLANTIS Trials Investigators; ECASS Trials Investigators; NINDS rt-PA Study Group Investigators. Association of outcome with early stroke treatment: pooled analysis of ATLANTIS, ECASS, and NINDS rt-PA stroke trials. Lancet. 2004 Mar 6;363(9411):768-74.
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3. Mori E, Yoneda Y, Tabuchi M, Yoshida T, Ohkawa S, Ohsumi Y, Kitano K, Tsutsumi A, Yamadori A. Intravenous recombinant tissue plasminogen activator in acute carotid artery territory stroke. Neurology. 1992 May;42(5):976-82.
4. Furlan A, Higashida R, Wechsler L, Gent M, Rowley H, Kase C, Pessin M, Ahuja A, Callahan F, Clark WM, Silver F, Rivera F. Intra-arterial prourokinase for acute ischemic stroke. The PROACT II study: a randomized controlled trial. Prolyse in Acute Cerebral Thromboembolism. JAMA. 1999 Dec 1;282(21):2003-11.
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# Electronic Poster Awards 2012 - Congratulations to our Winners!

## SCIENTIFIC POSTERS

### Magna Cum Laude

Percutaneous in utero thoracoamniotic shunt creation for congenital lung malformations: a novel technique
*S.B. White[1], W.S. Rilling[1], M.B. Ames[2], R.S. Kuhlman[1], T.R. Wigton[3], S.M. Tutton[1]; [1]Milwaukee, WI/US, [2]Portland, OR/US, [3]Grafton, WI/US*

### Cum Laude

Radiofrequency ablation of benign non-functioning thyroid nodules: 111 patients with 3-year follow-up
*J.E. Shin, J.H. Baek, E.J. Ha, J.H. Lee, J.Y. Sung; Seoul/KR*

Ultra low-dose dual source CT angiography of the supraaortic arteries using 100 kV tube voltage, a high pitch and raw data-based iterative reconstruction: preliminary results
*D. Beitzke, R. Nolz, G. Edelhauser, D. Berzaczy, C. Plank, F. Wolf, J. Lammer, C.M. Loewe; Vienna/AT*

### Certificate of Merit

Balloon coating with rapamycin using an on-site coating device
*J. Schmehl[1], I. Braun[2], J. Ruhr[1], M. Dobratz[1], R. Bantleon[1], C.D. Claussen[1], B. Behnisch[2]; [1]Tübingen/DE, [2]Hechingen/DE*

Fibroid embolization: long-term (mean 11yr) results
*M. Krokidis, H. Hamoda, L. Pepas, F. Tasker, P. Braude, Y. Khalaf, J.F. Reidy; London/UK*

Anatomical assessment of the origin of the right inferior phrenic artery with the use of MDCT
*S. Kanasaki[1], A. Furukawa[2], T. Hirose[1], Y. Hamanaka[1], S. Furui[2], T. Sakamoto[3]; [1]Kyoto/JP, [2]Tokyo/JP, [3]Otsu/JP*

Dual recanalization technique for complex tibioperoneal and femoropopliteal lesions in critical limb ischaemia
*Z. Ruzsa[1], B. Nemes[1], F. Kuti[2], S. Kudrnova[1], K. Tóth[2], I. Koncz[2], Z. Bánsághi[1], B. Merkely[1], K. Hüttl[1]; [1]Budapest/HU, [2]Kecskemet/HU*

Long-term follow-up of radiofrequency ablation of renal tumours: a multicentre analysis with minimum follow-up of 5 years
*S. Roy-Choudhury[1], I. Pressney[2], A. Rekhi[1], J. Cast[3], D.J. Breen[2]; [1]Birmingham/UK, [2]Southampton/UK, [3]Cottingham/UK*

## EDUCATIONAL POSTERS

### Magna Cum Laude

Image-guidance for interventional oncology: new tools in the angio-suite
*A. Barah, T. de Baère, A. Hakimé, J. Joskin, L. Tselikas, A. Hameg, G. Farouil, F. Deschamps; Villejuif/FR*

### Cum Laude

MR neurography-guided injection procedures for the diagnosis and treatment of pelvic pain syndromes
*J. Fritz, K. Wang, A.J. Flammang, A. Chhabra, J.A. Carrino; Baltimore, MD/US*

Alternative venous access: options in challenging catheter-dependent patients
*R. Ramaswamy, A.R. Jani, A.C. Roberts, T.B. Kinney; San Diego, CA/US*

### Certificate of Merit

Role of multidetector CT angiography in evaluation of acute gastrointestinal bleeding: a pictorial review
*R. Dattesi, R. Iezzi, M. Santoro, M.F. la Torre, E.G.M. Antonuccio, A. Guerra, L. Bonomo; Rome/IT*

Endovascular treatment of in-stent occlusion: new technique for recanalization of long superficial femoral artery occlusion (direct stent puncture technique)
*L.M. Palena, B. Cesare, B. Domenico, A. Candeo, I. Alek, M. Manzi; Abano Terme/IT*

3T-MR angiography evaluation of thoracic outlet syndrome (TOS): assessment using bilateral synchronous venous contrast injection
*D. Poretti[1], E. Lanza[2], V. Pedicini[1], G. Mauri[2], L.M. Sconfienza[2], F. Sardanelli[2]; [1]Rozzano/IT, [2]Sandonato Milanese/IT*

Is IVC looking different?
*L. Andrade[1], H. Correia[2], A. Gil-Agostinho[1], P.B. Soares[1], P. Donato[1], F. Caseiro-Alves[1]; [1]Coimbra/PT, [2]Viseu/PT*

MR and endorectal US findings in benign prostatic hyperplasia before and after prostatic artery embolization
*T. Bilhim, J.M. Pisco, H. Rio Tinto, L. Fernandes, J.A. Pereira, M. Duarte, L.C. Pinheiro, A.G. Oliveira, J. O'Neill; Lisbon/PT*

Advertorial

# Gore Scientific Programme


## Sunday, 16 September

**8.00 – 8.20**
**Gore Breakfast Symposium / Room 3A**

**Latest clinical evidence on stents versus stent grafts for SFA occlusive disease: What approach makes sense?**
*Moderators: G. Krupski, Reinbek, Germany; E. Verhoeven, Nuremberg, Germany*

- VIASTAR 1-year multicenter prospective randomized trial results: Does SFA endoluminal bypass really outperform stents for SFA occlusive disease and when do I use them?
  *J. Lammer, Vienna, Austria*

**11.30 – 13.00**
**Gore Learning Center**
*Refreshments will be served*

**Learning by Sharing – Dealing with challenges in EVAR and TEVAR**
*Moderator: B. Katzen, Miami, USA*

- Hostile aortic necks: Approaches and techniques for best clinical outcomes with the GORE® EXCLUDER® AAA Endoprosthesis featuring C3 Delivery System
  *G. Robinson, Hull, UK*
- Durability paired with innovation: Best treatment options for tortuous iliac arteries
  *N. Nyman, Stockholm, Sweden*
- Emergency repair in the thoracic aorta: Logistic challenges and practical examples
  *M. Hamady, London, UK*
- Acute Type B dissection: When and how to treat, personal experience and practical examples
  *J. Brunkwall, Cologne, Germany*

**14.30 – 15.30**
**Gore Learning Center**
*Refreshments will be served*

**Latest innovation in peripheral stenting: Is there still room for a new generation stent design? Updates and interactive review of challenging cases**
*Moderators: D. Scheinert, Leipzig, Germany*

- Is there still room for a new stent design?
  *F. Thavaut, Strasbourg, France*
- Early clinical experience with the GORE® TIGRIS Vascular Stent
  *M. Piorkowski, Leipzig, Germany*
- Interactive review of challenging cases:
  – *M. Galli, Como, Italy*
  – *G. Krupski, Reinbek, Germany*
  – *N. J. Mosquera, Ourense, Spain*

## Monday, 17 September

**11.30 – 12.30**
**Gore Learning Center**
*Refreshments will be served*

**Where and when is endoluminal bypass the treatment of choice in peripheral artery disease? Interactive review and discussion of challenging cases**
*Moderator: C. Rabbia, Turin, Italy*

- Long de novo SFA lesions case: Is there a connection between stent graft oversizing and outcomes in long de novo SFA lesions? What does the 1-year VIPER data indicate?
  *R. Pini, Turin, Italy*
- In-stent restenosis case: Endoluminal bypass for the treatment of SFA in-stent restenosis. What does the RELINE trial indicate?
  *K. Deloose, Dendermonde, Belgium*
- Complex popliteal aneurysm case
  *L. Canaud, Montpellier, France*
- Troubleshooting case: Other aneurysms
  *D. Savio, Turin, Italy*
- AV access case
  *P. L. Riley, Birmingham, UK*

**14.30 – 15.30**
**Gore Learning Center**
*Refreshments will be served*

**Expanding TIPS indications**
*Moderators: D. Yu, London, UK; A. Krajina, Hradec Kralove, Czech Republic*

- Is TIPS effective as bridge to liver transplant?
  *G. Maleux, Leuven, Belgium*
- Feasibility and efficacy of TIPS in children
  *R. Aggazi, Bergamo, Italy*
- Effect of TIPS on PVT in patients with cirrhosis
  *A. Luca, Palermo, Italy*
- Results GORE® VIATORR® TIPS Endoprosthesis to treat Budd Chairi Syndrome
  *J. C. García Pagán, Barcelona, Spain*

## Tuesday, 18 September

**11.30 – 12.30**
**Gore Learning Center**
*Refreshments will be served*

**Progression in the treatment of biliary obstructions**
*Moderator: P. Goffette, Brussels, Belgium*

- GORE® VIABIL® Biliary Endoprosthesis: Clinical results for malignant and benign biliary obstructions
  *F. Fanelli, Rome, Italy*
- Tips and tricks using biliary stent for benign and malignant biliary obstructions
  *P. Almeida, Viseu, Portugal*

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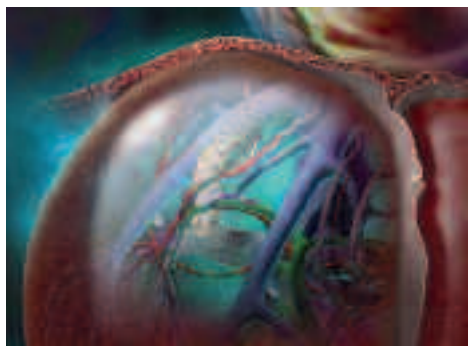
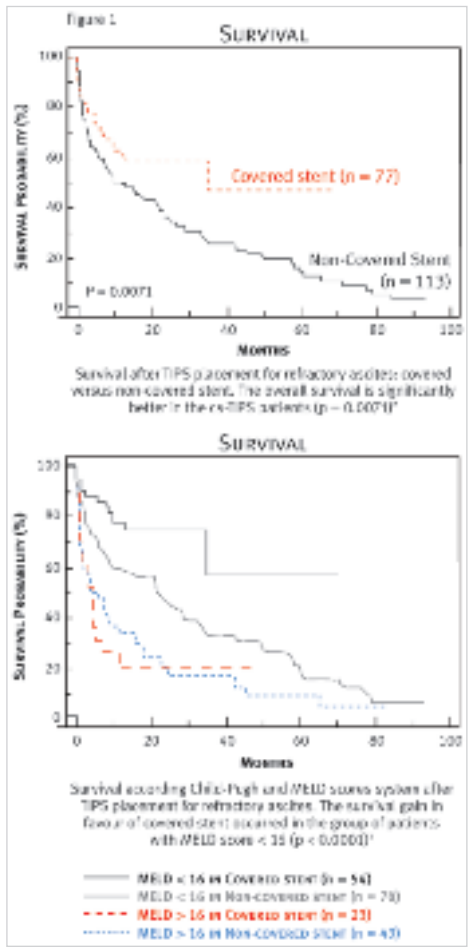
Advertorial

# Unmatched Data, Unsurpassed Patency and Superior TIPS Performance



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**The GORE® VIATORR® TIPS Endoprosthesis is an innovative solution for TIPS.**

The Only FDA and CE Mark Approved Stent-Graft for TIPS

- Unsurpassed patency
- Superior radial strength
- Device flexibility
- Brilliant visibility under fluoroscopy
- Optimal configurations for TIPS applications

**GORE® VIATORR® TIPS Endoprosthesis Compared to Bare Metal Stents**

In a randomized prospective trial, Bureau, et al., found the actuarial rates of primary patency in the GORE® VIATORR® Device group and bare metal stent group were 76% and 36%, respectively, at 2 years (p = 0.001 – log-rank test)[1].

In a retrospective analysis of cirrhotic patients with refractory ascites, Maleux, et al., found that TIPS using the GORE® VIATORR® Device offers better symptomatic control of the ascites at one year follow-up and a better overall survival, compared to bare metal stents[2]. (Figure 1)

**GORE® VIATORR® TIPS Endprosthesis Compared to Endoscopic Band Ligation (EBL)**

In a randomized, controlled clinical trial with TIPS performed within 72 hours after diagnostic endoscopy and a 1-year follow up, results demonstrated an 86% actuarial survival in the early-TIPS group versus 61% in the pharmacotherapy – EBL group ($p < 0.001$)[3]. The 1-year actuarial probability of remaining free of failure to control bleeding and of variceal rebleeding was significantly higher in the early-TIPS group than in the pharmacotherapy – EBL group (97% vs. 50%; absolute risk reduction, 47 percentage points; 95% confidence interval [CI], 25 to 69; number needed to treat, 2.1 patients; 95% CI, 1.4 to 4.0).

The conclusion was that patients with cirrhosis who were hospitalized for acute variceal bleeding and at high risk for treatment failure, the early use of TIPS was associated with significant reduction in treatment failure and in mortality.

**TIPS Compared to Large Volume Paracentesis (LVP)**

Although randomized comparisons of the GORE® VIATORR® Device vs. LVP are in progress, data from bare metal stents provide evidence of the effectiveness of the TIPS procedure compared to continued LVP in ascites patients. In a meta-analysis of individual patient data, it was reported that bare metal stent – TIPS significantly improves transplant-free survival of cirrhotic patients with refractory ascites[4]. The cumulative probability of developing the first episode of hepatic encephalopathy (HE) was similar between the groups (p = .19). The average transplant-free survival at 12, 24 and 36 months of follow-up was 63.1%, 49% and 38.1% for patients allocated in the BMS-TIPS group and 52.5%, 35.2% and 28.7% for patients allocated to large volume paracentesis (LVP), respectively. (Figure 2)

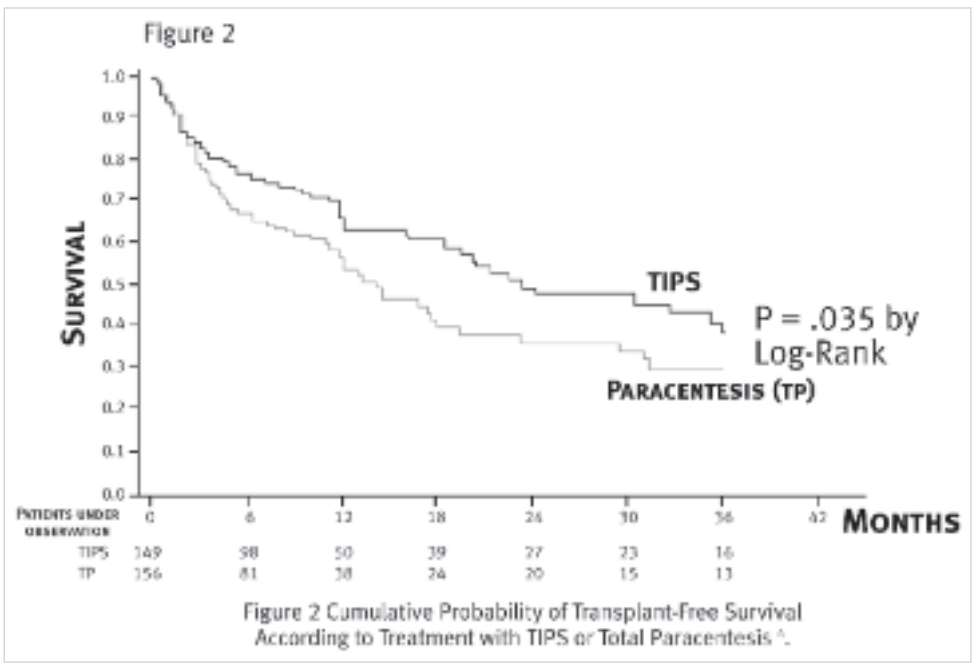


Figure 2 Cumulative Probability of Transplant-Free Survival According to Treatment with TIPS or Total Paracentesis [4].

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**Health Economic Benefits**

Bureau *et al.* reported that TIPS with bare metal stents has been less cost effective than other procedures. This is mainly owing to the monitoring and the revisions required to maintain shunt patency. It has been shown that the use of covered stents could result in cost reduction because of decreased clinical relapses and decreased need for shunt revisions[1].

TIPS is a safe intervention that reduces the need for LVP. Careful calibration allows satisfactory relief of ascites with a low incidence of HE. It has been demonstrated that extremely low complication rates and exceptionally high patency rates can be achieved with the use of GORE® VIATORR® TIPS Endoprosthesis. In the United Kingdom, health economic data favoured TIPS with a cost of £500 per month of patient follow-up for TIPS and £3,500 per month of patient follow-up for paracentesis. Careful patient selection for this procedure has demonstrated significant health economic benefit in favour of a dedicated TIPS endoprosthesis[5].

**Conclusion**

A large body of published data demonstrate numerous clinical advantages of GORE® VIATORR® TIPS Endoprosthesis in treatment of patients with refractory ascites and variceal bleeding. Furthermore, GORE® VIATORR® TIPS Endoprosthesis may be associated with decreased patient-care costs compared to other therapies.

Considering these results, the role of GORE® VIATORR® TIPS Endoprosthesis in the management of portal hypertension should be considered. The improvement of TIPS patency by using ePTFE-covered stents is maintained over time with a decreased risk of hepatic encephalopathy and a decreased risk of death. Furthermore, data demonstrate the clinical advantage of GORE® VIATORR® TIPS Endoprosthesis in treatment of patients with variceal bleeding and refractory ascites. Finally, GORE® VIATORR® TIPS Endoprosthesis has demonstrated a decrease in associated patientcare costs. Considering these results, the role of GORE® VIATORR® TIPS Endoprosthesis in the management of portal hypertension should be considered.

**Reference:**
1. Bureau C, Pagan JCG, Layrargues GP, et al. Patency of stents covered with polytetrafluoroethylene in patients treated by transjugular intrahepatic portosystemic shunts: long term results of a randomized multicentre study. *Liver International* 2007; 27(6):742-747.
2. Maleux G, Perez-Gutierrez NA, Evrard S, et al. Covered stents are better than uncovered stents for transjugular intrahepatic portosystemic shunts in cirrhotic patients with refractory ascites: a retrospective cohort study. *Acta Gastro-Enterologica Belgica* 2010;73(3):336-341.
3. García-Pagán JC, Caca K, Bureau K, et al; Early TIPS Transjugular Intrahepatic Portosystemic Shunt) Cooperative Study Group. Early use of TIPS in patients with cirrhosis and variceal bleeding. *New England Journal of Medicine* 2010;362(25):2370-2379.
4. Salerno F, Cammà C, Enea M, Rössle M, Wong F. Transjugular intrahepatic portosystemic shunt for refractory ascites: a meta-analysis of individual patient data. *Gastroenterology* 2007; 133(3):825-834.
5. Pither C, Bryant TJ, Stedman B, et al. TIPS for refractory acsites: a single centre experience with covered stents. Abstract presented at The Liver Meeting® – The 60th Annual Meeting of The American Association for the Study of Liver Diseases (AASLD); October 30-November 3, 2009; Boston, MA. *Hepatology* 2009;50(4)Supplement: 465A. Abstract 339.



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# Update on stroke revacularisation results

*Tommy Andersson*

**Don't miss it !**
**Acute stroke treatment**
**Special Session**
Saturday, September 15, 11:30-12:30
Room 3A

Acute ischaemic stroke is a devastating disease and today's third leading cause of death in the western world, responsible for 10-12% of the overall mortality. Protecting the brain by mainly pharmacological means from the consequences of ischaemia has been the focus for research and development for a long time, but as it has never worked in human trials, the interest has expanded towards revascularisation strategies. Reperfusion of the parts of the brain that suffer from ischaemia by recanalisation of the occluded artery is today the most effective therapy for acute stroke patients. By restoring blood flow to the threatened tissue before progress to infarction, reperfusion therapies reduce the final infarct size and enable better clinical outcome. Such revascularisation can be achieved pharmacologically with thrombolytic drugs administered intravenously or intra-arterially, or mechanically by intra-arterial thrombectomy.

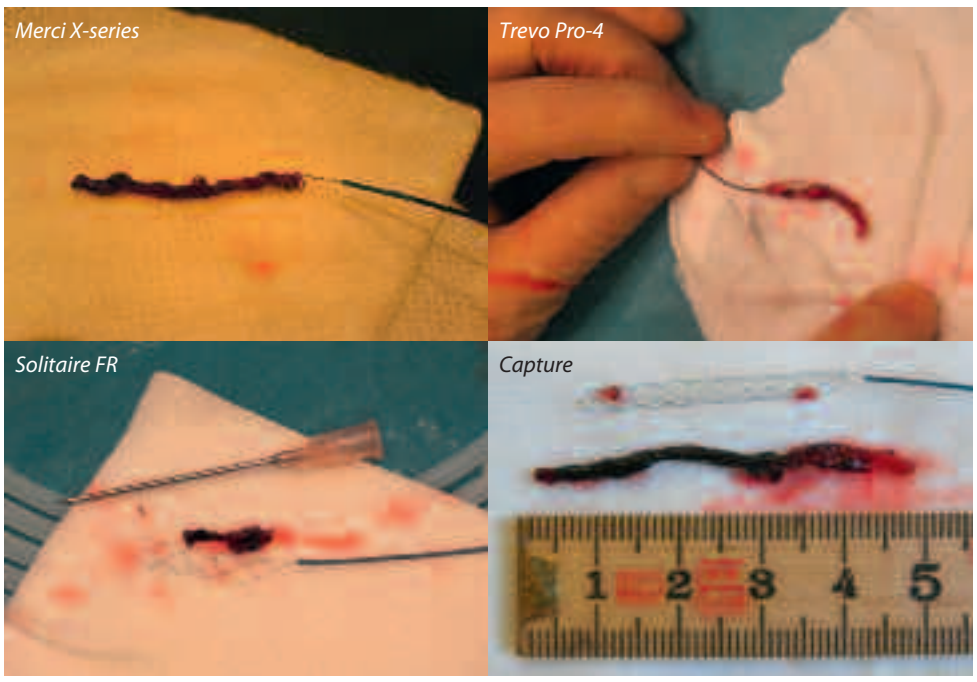


*Fig. 1: Thromboemboli removed with the original X5 Merci device and with various "stent-trievers". These are all CE-marked and commercially available in Europe today.*

**Pharmacological thrombolysis**
Intravenous (i.v.) thrombolysis with alteplase (recombinant tissue plasminogen activator – rt-PA) has proven to be efficient and safe in several randomised control studies. Initially the positive effect of the treatment was shown to be significant within 3 hours of stroke onset but more recently the window has been extended to 4.5 hours. But despite being clinically efficient in large series, > 50% of the patients treated intravenously remain disabled or die. Such unfavourable outcomes are more likely in patients with severe neurological deficits, higher age and persistent arterial occlusion. So, if the treatment cannot achieve revascularisation, the chances of a good clinical outcome become less and it has been shown that partial or complete recanalisation by i.v. rt-PA is especially unlikely in proximal large vessel occlusions, only achieved in 10% of occluded internal carotid arteries and in 25% of occluded proximal middle cerebral arteries (MCA). Many stroke patients do suffer from large vessel occlusions and the consequence is that the numbers needed to treat for death and dependence become high and increase with time; < 90 min = 4; 90 min-3 hours =7; and 3-4.5 hours = 14. In summary, it could be stated that i.v. thrombolysis is a proven therapy that should be executed on all eligible patients, but we need additional therapies for non-eligible patients and for non-responders.

Could then intra-arterial thrombolysis with rt-PA or various kinases be such an additional therapy? Three randomised trials, PROACT I, PROACT II and MELT, have studied the efficacy in MCA occlusions with the infusion starting within 6 hours of symptom onset. Treated patients had higher recanalisation rates and better 90-day outcomes than the control groups, but a higher occurrence of symptomatic intracranial haemorrhage. The combination of i.v. and i.a. thrombolysis has actually been investigated in the IMS I and IMS II studies. The patients received i.v. rt-PA followed by the same drug additionally administered intra-arterially. Treated patients in both studies had significantly better outcomes than placebo-treated patients in a large rt-PA stroke trial and a similar rate of symptomatic ICH compared with actively treated patients from that same trial. So, after looking at i.a thrombolysis as an add-on treatment, it seems that it may offer additional benefit, but the results and outcomes are not strikingly improved, perhaps because i.a. pharmacological therapy takes time, and time is exactly what is missing for an acute stroke patient.

**Mechanical thrombectomy**
If we need to be fast and efficient, yet safe, is mechanical thrombectomy the treatment we are looking for? Could it be an alternative for patients excluded from intravenous treatment, e.g. presenting > 4.5 hours after ictus or with an unclear time of onset? Could it also offer something for non-responders in whom the intravenous infusion does not or may not work; we know that patients with NIHSS ≥ 12, which is indicative of a large vessel occlusion, especially if the length of the thrombus is > 8 mm, are unlikely to respond to i.v. treatment. There are no randomised controlled studies for mechanical thrombectomy, but the technique has been evaluated in two prospective, non-randomised trials: the MERCI-trial and the Multi-MERCI trial. Both these studies included patients with large vessel occlusions in which mechanical thrombectomy could be started within 8 hours after symptom onset. MERCI-trial patients were rt-PA ineligible, whereas the Multi-MERCI trial also included patients that had been unsuccessfully treated with i.v. rt-PA. These trials showed higher recanalisation rates compared with control patients from the PROACT II study, a reasonably good percentage of independent patients at 90 days' follow-up, but a higher mortality rate as compared to actively treated patients in PROACT II.

The Penumbra Pivotal Stroke Trial and the Penumbra Post trial evaluated a thrombus aspiration technique. Both studies revealed a very high rate of recanalisation, but the percentage of independent patients at 90 days were relatively low in the Pivotal trial, with a high mortality rate comparable to that in Multi-MERCI. The 90-day outcome was markedly improved in the Post trial, with a decreased mortality also.

More recently, so-called "stent-trievers" have been widely used and they are today the first choice for many neurointerventionalists. One such "stent-triever", the Solitaire TM FR revascularisation device, was used in six experienced European centres where retrospective data was collected for 141 patients. This study showed 86% revascularisation success, 6% symptomatic intracranial haemorrhages, and good outcome, i.e. independence, in 55% of the treated patients. Similar results with that same device were presented at the International Stroke Conference in New Orleans, USA in February 2012. In the Solitaire™ arm of the SWIFT trial (SOLITAIRE™ With the Intention for Thrombectomy) successful recanalisation was achieved in 61%, symptomatic intracranial haemorrhage appeared in 2%, and 58% of the patients presented with a good neurological outcome at 90-day follow-up.

There are also several on-going national prospective, randomised studies for mechanical thrombectomy with the purpose of studying safety and effectiveness, e.g. THRACE (Trial and Cost Effectiveness Evaluation of Intra-arterial Thrombectomy in Acute ischaemic Stroke) in France, and in the Netherlands MR CLEAN (multicenter randomized clinical trial of endovascular treatment for acute ischemic stroke in The Netherlands). IMS III, performed in the USA, Canada, Australia and the European Union, studies a combination of i.v. and i.a. therapies compared with conventional i.v. thrombolysis. The i.a. therapy includes thrombectomy with the Merci-device, as well as augmented i.a. sono-thrombolysis with the EKOS ultrasound/micro-infusion system. On April 19 this year, it was announced that the National Institute of Neurological Disorders and Stroke decided that the enrolment should be put on hold based on recommendations from the Data and Safety Monitoring Board. The decision was taken because of futility, as there were no differences in clinical outcome between the two patient groups in the study. The subject follow-up will continue and there were no significant safety concerns. We will have to wait to see the details of the study and the basis for this decision.

In conclusion, mechanical thrombectomy seems to be safe and efficient, offering the possibility for good patient outcome.

**Summary and future**
Ischaemic stroke is a common disease in the industrialised world that mostly affects older people. With an ageing population, a steady increase of stroke patients can probably be expected. For these patients, we need safe and efficient treatment options. Today, revascularisation with intravenous thrombolysis and/or mechanical thrombectomy offers an excellent treatment option, and can be used in combination with other treatment strategies.

We also need proper recruitment and standardised training for an increasing number of neurointerventionalists in the near future. For this reason, the UEMS (Union Européenne des Médecins Spécialistes) has in 2011 established guidelines for training to achieve "Certification of particular qualification" in interventional neuroradiology, as well as a system for accreditation of the training programmes at various hospitals and institutions.

The combination of new and better tools, both pharmacological and mechanical, and a standardised training of operators, can hopefully lead to an improved outcome for the many patients that may otherwise die or become severely injured by the terrible blow of an ischaemic stroke.

**Tommy Andersson**
*Karolinska University Hospital*
*Stockholm, Sweden*

*Dr. Tommy Andersson is Head of Neurointerventions and the Director for Education in Neurovascular Treatment at Karolinska University Hospital, Stockholm. He also serves as shared director for the Section of Neurointervention and Angiography at KERIC (Karolinska Experimental Research and Imaging Centre). Dr. Andersson graduated from Karolinska Institute Medical School and completed his fellowship in Vascular Neurosurgery and Interventional Neuroradiology at Toronto Western Hospital. He is board-certified in Neurosurgery and Neuroradiology, has authored over 50 publications and book chapters, and has served as referee for several international journals.*

**Suggested reading:**
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# CIRSE 2012 Party

**Tuesday, September 18, 20:00**
**Pátio da Galé, Lisbon**

**Held at the stunning location of the Pátio da Galé, the CIRSE 2012 Party will be the perfect opportunity to meet colleagues and friends on a late summer evening.**

**Dinner will be served in the impressive Sala dos Riscos. After dinner, the German band "Fresh Music Live" will entertain you with live versions of well-known modern songs and standards in their own inimitable style.**

**A great party is guaranteed!**

**You can choose to join us for the dinner and party or, if you prefer to have dinner elsewhere in the city, the party only.**

**Make sure to secure your tickets for the CIRSE 2012 Party!**

**Please refer to the "Hotel, Tours & Social Events" counter at the congress centre.**

*Kindly note that the CIRSE Party is a seated dinner. Table or seat reservation is not possible.*
*CIRSE supports compliance with ethical standards. Therefore, CIRSE emphasises that the present offer (made by KUONI Destination Management operated by Buzz Portugal DMC) is directed to participants of CIRSE 2012 and recommends that the participants who want to accept the present offer shall bear any and all costs in this context themselves.*

# Intervention IQ – Flying the Flag for IR

We are proud of the IRs of this world: every day, you provide patients with exemplary care and minimally invasive solutions to their problems. But do you get the recognition you deserve?  Do your procedures get the resources they should? Are your patients given all the options you make available to them? Do your colleagues know what you can offer?

A lack of awareness is still one of the main obstacles surrounding IR, which can reduce the need for invasive procedures. To overcome this, Intervention IQ has been established as a high-quality channel of communication to key decision-makers in healthcare, providing a continuous flow of information which shows the successes and potential of IR as a promising alternative or adjunct to open surgery. Intervention IQ reaches over 45,000 readers per issue, including hospital managers, department heads, doctors, health politicians, the medical industry and many more. By reaching these groups, the goal is to facilitate patient access to gentle, minimally invasive solutions.

Every issue is themed, and our latest issue, Venous Interventions, offers a succinct overview of the venous disorders that IR can treat. As ever, a combination of IR interviews, patient testimonials, economic analysis and latest research is used to show the role that IR can and does play in treating these common complaints.


**You can find a complimentary copy in your congress bag – if you'd like to read any of our previous issues, you can pick them up at the Next Publishing Intervention IQ Lounge, here in the Congress Centre.**

Here's an extract from the latest issue…

**To find out more, visit www.intervention-iq.org**

## RFA for Varicose Veins

**The treatment**

Radiofrequency (RF) ablation is one of the common ways to treat symptomatic varicose veins by applying endovenous heat.

With the latest technology a catheter with an RF tip is inserted into the varicose vein and advanced to where the treatment should begin, which is typically at the groin level. The RF tip heats each segment to 120°C for 20 seconds, as the catheter is carefully pulled back segment by segment.

As it is heated the injured vein will close shut and no longer be able to cause troublesome symptoms.

In order to protect the surrounding healthy tissue a large amount of local anaesthetic is injected around the vein (tumescent anaesthesia), this absorbs excess heat so burning is avoided.

**Ablation methods compared**

RF and laser treatments have shown very similar results. One advantage of RF is that the therapy is more standardised as the technique requires the catheter to be pulled back segment by segment every 20 seconds. Laser ablation involves a continuous pull back during the procedure: this will vary with each physician.

Another advantage is that the RF therapy seems to give rise to less postprocedural pain and bruising when compared to bare tip laser fibres. However, this advantage may be balanced when covered laser fibre tips and different wave lengths are used.

**Interdisciplinary care**

Patients with symptomatic varicose veins are examined at our interdisciplinary vascular centre, in which IR, vascular surgery and angiology work together.

To begin with, a physician of any one of these specialties examines the patient. A duplex ultrasound is a vital part of the examination, in order to reliably diagnose and locate the insufficient varicose vein(s) causing the symptoms.

RF therapy can be applied in most cases except wher varicose veins are very tortuous or the diseased vein segments are very short (less than 10cm). In these circumstances surgical therapy is more suitable.

**The results**

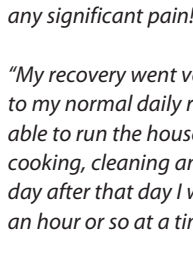
RF therapy of varicose veins is a safe and effective procedure with success rates of 90% or higher at two years.

Symptoms disappear typically within a few weeks and serious complications are extremely rare. The most likely problem is aching pain and bruising for a few days. Some staining of the treated vein can occur, although this discoloration has no clinical impact. In rare cases, the nerve which runs alongside the vein can be damaged by the heat. This sounds more dramatic than it is, because typically the problem is only a sensory deficit around the ankle which likely recovers over the following months. Motor function is hardly ever impaired.

**Patient Satisfaction**

The vast majority of the treated patients are very pleased with the procedure. Patients like the fact that RF therapy is an outpatient treatment with only local anaesthesia needed. They are also very happy and sometimes even surprised that there is little or no recovery time, minimal or no pain and a good cosmetic outcome.

Unfortunately, RF and laser vein therapies are generally not reimbursed by insurance companies in many European countries. Therefore, the treatment has to be paid for by the patient. Efforts to overcome the reimbursement issues are being made.



**Prof. Christoph A. Binkert**
*MD, MBA, Director of the Institute of Radiology and Chairman of Diagnostic and Interventional Radiology, Winterthur Kantonsspital, Switzerland*

**Patient's point of view**

Ms. Sonja Budja, a patient of Prof. Binkert, shares her experience of how she found RF therapy a convenient and effective treatment for symptomatic varicose veins:

*"The leg that was affected felt uncomfortably heavy and the calf was discoloured and red. I feared the development of an ulcer.*

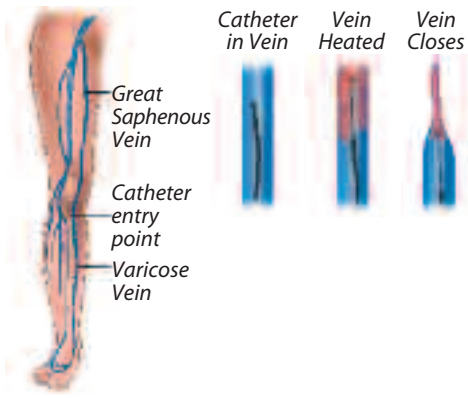
*"I had already had a vein- stripping operation done on the other leg 20 years ago and I can remember how the operation was quite invasive. I needed spinal anaesthesia and had to stay in hospital for three days. This time around, I looked for a less invasive treatment option that wouldn't require me to stay in hospital or have strong anaesthesia.*

*"The [endovenous RF therapy] I went on to have six weeks ago was very tolerable. I could barely feel the pinpricks of the needles. The atmosphere was relaxed and so the procedure went by very quickly. I was most impressed that I left home at 14:30 and returned at 17:30, able to walk without any significant pain!*

*"My recovery went very smoothly and I returned to my normal daily routine the next day. I was able to run the household as normal, doing the cooking, cleaning and even the laundry. From the day after that day I was able to go for walks for an hour or so at a time.*

*"I am very happy with the result of the treatment. The heaviness and most of the redness and discoloration have disappeared and I am in no pain. The newer [IR] treatment is an improvement over the surgery which I had on the other leg. I would recommend this treatment to everyone."*

With very special thanks to Sonja Budja.




*Vein Ablation image reprinted with permission of the Society of Interventional Radiology*


*Thorough follow-up is an essential part of clinical care: Prof. Binkert takes time to sit down with the patient in his office.*

Advertorial

# New Product Launches

## ATRIUM

### V12 RX covered stent

The V12 RX covered stent is the latest addition to Atrium's complete line of V12 balloon expandable PTFE covered stents. The new .014" rapid exchange, low profile (5 and 6Fr introducer sheath compatible), highly deliverable V12 RX stent platform is the ultimate solution for small vessel applications and tortuous anatomy.

V12 RX is a fully encapsulated customizable balloon expandable PTFE covered stent. Atrium is the first and only company to provide you with a high quality covering technology that is engineered to optimize healing, reduce restenosis, and prevent bleed through. Let Atrium, the world leader in balloon expandable covered stents, and its superior V12 product offering deliver the results you expect, where you need it and when you need it. To find out more about Atrium's V12 family and how it can benefit your patients please visit us at www.atriummed.com or our Atrium booth 6 during CIRSE.

## BAYER

### JETSTREAM Atherectomy System

Bayer expands its portfolio of interventional products with the introduction of the JETSTREAM Atherectomy System for restoring flow and preserving options in the treatment of peripheral arterial disease (PAD) .
This rotational atherectomy system offers a range of catheter sizes to treat both above (ATK) and below the knee (BTK) peripheral arterial disease. Indicated for use in multiple lesion morphologies including calcium and thrombus, the JETSTREAM technology features differential cutting to remove lesion materials while preserving the soft vessel walls.
The JETSTREAM System also provides continuous active aspiration and a unique front-cutting head on all the family of catheters. The Navitus catheter expandable blade technology enables physicians to treat both the common and superficial femoral arteries with one device. Initially, the JETSTREAM System will be marketed to select countries through Bayer direct sales offices and local distributors.

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## BOSTON SCIENTIFIC

### Innova™ Self-Expanding Bare-Metal Stent System

The Innova™ Self-Expanding Bare-Metal Stent System is designed to treat peripheral vascular lesions in arteries above the knee, specifically the superficial femoral artery (SFA) and proximal popliteal artery (PPA).

The innovative design and stent architecture used in the Innova Stent platform provide excellent radial strength while remaining flexible and very fracture-resistant, which is critical to sustaining patency in treated SFA and PPA lesions. The Innova Stent System consists of a Nitinol, self-expanding bare-metal stent loaded on an advanced low-profile delivery system. Deployment accuracy is enhanced with a triaxial catheter shaft designed to provide added support and placement accuracy as well as radiopaque markers to enhance ease of use. The Innova Stent is 6F (2.0 mm) compatible and is available in sizes from 5 mm to 8 mm in stent diameter and 20 mm to 200 mm in length.

## BOSTON SCIENTIFIC

### PROMUS Element™ Plus BTK Stent

The PROMUS Element™ Plus BTK Stent has been approved with Below The Knee indication and is aimed to provide physicians improved DES performance in treating patients with Critical Limb Ischemia (CLI) or severe lower leg claudication in infrapopliteal lesions. The PROMUS Element Stent uses a proprietary PtCr (platinum chromium) alloy designed specifically for stenting, which enables thinner struts and enhanced visibility. The innovative alloy and stent design offers a more conformable stent with less recoil and higher radial strength. It employs an advanced low-profile delivery system featuring a dual-layer balloon and Bi-Segment™ inner lumen catheter designed to facilitate precise stent delivery across challenging lesions. The everolimus drug and fluorinated copolymer stent coating have been studied in multiple randomized clinical trials and 'real-world' registries in both Coronary and Peripheral Artery Disease, demonstrating excellent long-term safety and efficacy. The Promus Element™ Plus BTK will be available in both Over-The-Wire and Monorail ™ platform, and is available with a reference vessel diameter of 2.25 mm to 4 mm and from 12 mm to 38 mm in length.


## BOSTON SCIENTIFIC

### TruePath™ CTO Device

The TruePath™ CTO Device, is designed to facilitate the crossing of chronic total occlusions within the peripheral vasculature.
The TruePath™CTO Device features a rotating diamond-coated tip designed to break through occluded peripheral arteries and facilitate the placement of conventional guidewires. The ultra-low 0.018" (0.46 mm) profile is engineered for optimal crossing and once positioned; the distal tip rotates at 13,000 rpm through calcified lesions and other fibrous blockages.

The ReOpen clinical study evaluated the TruePath™ CTO Device in 85 patients with peripheral artery lesions. Study results demonstrated the device is safe and effective in facilitating the crossing of intraluminal CTOs following resistance or prior failed attempts with a conventional guidewire. In the study, technical success was achieved in 80.0 percent of patients, while improved post-procedure blood flow was demonstrated in 82.4 percent of patients. Safety was demonstrated with a 98.8 percent freedom from clinical perforation at the time of procedure.

CAUTION: The law restricts these devices to sale by or on the order of a physician. Indications, contraindications, warnings and instructions for use can be found in the product labeling supplied with each device. Information for the use only in countries with applicable health authority product registrations

## COOK MEDICAL

### Osteo-Site® Ratchet Bone Biopsy and Infusion Needle

**Drill into hard bone easily with a ratchet-style needle.**

Cook Medical's versatile line of high-quality, ultrasharp, ergonomic Osteo-Site needles allows clinicians to access, biopsy and infuse bone in a variety of situations, ensuring that any procedural need can be met.

Cook's new Osteo-Site Ratchet needle is designed for situations in which hard bone penetration is needed.

- A ratchet-style unidirectional drilling action and unique spade-tip design allow hand-drilling into hard bone.
- Hand control allows smooth drilling while reducing risk of incidental loss of pressure or direction.
- The quiet drilling operation can help maintain patient comfort.
- The outer cannula is marked in 1 cm increments to help guide drilling and gage depth.

## COOK MEDICAL

### Aprima™ Access Nonvascular Introducer Set

**Redefine access with a set engineered to make every aspect of your procedure go smoothly.**

Cook Medical offers the widest assortment of drainage products available, designed to access, target and treat any drainage objective. The Aprima Access set redefines access with our long-established focus on patient comfort and procedural ease.

- The Transitionless-Tip™ design requires less insertion force than standard access sets[1] and virtually eliminates hang-ups during entry, which helps provide seamless access and reduce the risk of patient trauma.
- The entire shaft and distal tip – not just one small band – are radiopaque to maximize fluoroscopic visibility during placement.
- The set includes an EchoTip® echogenic access needle for optimal ultrasound visibility, a Cope Mandril wire guide, and the hydrophilic-coated coaxial introducer sheath, which work together to ease every step of the placement process.

[1] *Benchtop testing performed against industry standard products. Data on file.*

## COOK MEDICAL

### Peripherally Inserted Central Venous Catheters

**Provide the right PICC for any treatment and every patient.**

Cook Medical's diverse array of venous access products, from PICCs and ports to both acute and long-term CVCs, is designed to make sure clinicians are never left without an answer for their patients.

Our new 3.0 and 6.0 Fr Turbo-Ject power-injectable PICCs continue our mission of providing the right device in any situation.

- A complete line of PICC options can ensure that you always have the tool you need, from silicone and power-injectable polyurethane options to catheters uniquely impregnated with the antibiotics minocycline and rifampin to help prevent CRBSIs.
- More sizes and configurations can increase treatment options and help improve patients' lives every day.
- New 3.0 and 6.0 Fr power-injectable PICCs add to an already diverse product selection.

Advertorial

# New Product Launches

## CORDIS

### POWERFLEX® Pro .035" PTA

Cordis announces the launch of the POWERFLEX® Pro .035" PTA DILATATION CATHETER in Europe.

POWERFLEX® Pro is a .035" PTA workhorse solution that delivers advanced crossability and remarkable versatility to treat routine, or challenging cases in the lower extremities.

POWERFLEX® Pro was developed to meet physicians' needs for a lower profile, puncture resistant, PTA balloon, in a wide range of sizes. This balloon catheter offers many features and benefits to aid in patient treatment; including long lengths up to 220 mm to treat long lesions in one uniform dilatation, short balloon shoulders for accuracy and post-dilatation ballooning, along with a rated burst pressure of up to 18 atmospheres to treat calcified lesions.

POWERFLEX® Pro demonstrates the company's commitment to deliver solutions for the treatment of Peripheral Vascular Disease (PVD) and is the most recent addition to CORDIS Lower Extremity Solutions Portfolio.

## COVIDIEN

### OneShot™ Renal Denervation System

Covidien, a global leader in vascular therapies and RF technology, is proud to announce the introduction of the OneShot™ renal denervation system. The OneShot system's balloon catheter features a proprietary, continuous spiral electrode and integrated irrigation to optimize procedural speed, consistency, and ease-of-use.

**Quick. Consistent. Controlled.**

- **Single-treatment RF ablation reduces procedure time: 2 minutes total** ablation per artery
- **Spiral electrode creates standardized, reproducible ablation pattern:** no need for catheter repositioning or multiple ablations per artery
- **Integrated irrigation cools and protects surrounding tissue,** reduces char formation, and increases depth of lesion
- **Low pressure balloon ensures consistent wall apposition and ablation pattern.** Available in 5-7 mm diameters, allowing physicians to treat a wide range of vessels
- **Designed for delivery over a standard 0.14" guidewire to allow for ease-of-use** with tools familiar to interventionalists

Visit us at booth 30 or our Learning Center for hands-on demonstrations.

116091-001 (A) JUL/12 - Intl

## COVIDIEN

### Viance™ Crossing Catheter Enteer™ Re-entry System

**A different approach to CTO you can really feel.**

Designed to ensure that the expert hand of the physician is front and center, the Viance™ crossing catheter and the Enteer™ re-entry system work intuitively to provide effective treatments.

**Viance™ Crossing Catheter – Finesse over Force**
A precision instrument designed to quickly and safely deliver a guidewire via the true lumen, the Viance™ crossing catheter puts the control of crossing where it belongs: in your hands. Providing an effective frontline option for CTOs, the Viance™ catheter enables you to utilize a proactive technique to cross total occlusions via the true lumen.

**Enteer™ Re-entry System – The power of intuitive control**
The Enteer™ re-entry system, consisting of the catheter and guidewire, gives you intuitive control to reliably target the true lumen from the subintimal channel above or below the knee. The system requires no capital equipment. It's designed to be nothing less than a precise extension of your own expert hand.

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## INSIGHTEC

### ExAblate O.R.

**ExAblate O.R. is the new generation MR guided Focused Ultrasound therapy for treating uterine fibroids, adenomyosis and bone metastases**

Reduced treatment time, expanded patient population and increased treatment durability are new features offered by InSightec's ExAblate O.R. This 3rd generation system implements the experience of thousands of treatments. It enables physicians to treat the targeted region in less time, streamlining workflow and improving the user and patient experience. Women who could not previously be treated effectively, i.e. scars, bowels in beam path, and fibroids of varying sizes, can now also be treated.

ExAblate is a non-invasive treatment with proven quick recovery, safe symptom relief, and effective, durable results, that preserves the uterus and fertility. It also provides effective pain palliation of bone metastases, osteoid osteoma and other painful osseous conditions.


## MERIT MEDICAL

### ONE Snare™ – Endovascular Snare System

Merit Medical is pleased to introduce the ***ONE* Snare™ Endovascular Snare System**, with a single 90-degree angle loop for retrieval and manipulation of IVC filters, coils, stents and other foreign bodies. The Nitinol and gold plated tungsten loop construction provides excellent visibility and structural integrity. The core wire provides flexibility and super elasticity to accommodate tortuous vessel navigation. The *ONE* Snare Endovascular Snare System includes a snare, a snare catheter, a new peel-away introducer tool designed to simplify snare deployment, and a torque device. Available in 9 different kit configurations with 7 snare loop sizes ranging from 5mms to 35 mms to accommodate a broad range of vessel sizes.

The *ONE* Snare, along with the interlaced triple loop *EN* Snare® Endovascular System are two retrieval options designed to provide you with the accuracy and reliability needed to capture or manipulate any foreign object within the vasculature.


## PHILIPS

### Industry leading image quality at a fraction of the dose

Philips new generation of interventional X-ray systems, the AlluraClarity family incorporates a set of techniques, programs, and practices that ensure excellent image quality, while reducing radiation exposure to people in X-ray environments.

During interventions you can't afford to make a trade-off between image quality and X-ray dose. But what if you could significantly reduce X-ray dose with no impact on image quality and no change to your preferred way of working?
Now you can with Philips revolutionary new generation of interventional X-ray systems: the AlluraClarity family.

Please visit **www.philips.com/AlluraClarity** for more information.

*Not available in the US.*

## STERYLAB

### MULTICORE®

**MULTICORE®** provides an optimised needle visualization under ultrasound guided biopsy procedures. By the natural of its constituent material it functions at any angle of entry into the body in relationship to the generation of sound waves by the ultrasound transducer. Thanks to its perfect smoothness, avoids any risk of seeding of malignant cells along the needle's path from the patient's body out. Specimens provided through **MULTICORE®** are particularly abundant and allow a quick, safe and easy biopsy procedure, either performed manually or through the most common imaging guiding systems, such as CT, US, MRI.

Advertorial

# New Product Launches

## STERYLAB

### PARAGON®

Sterylab, in the biopsy field for 40 years, thanks to innovative technologies and advanced engineering, presents **PARAGON®**:

**The NEW MILESTONE of Bone-Marrow Biopsy.**

Main advantages:

- 100% success in retrieval of intact specimen
- No need for bone luxation
- Easy and fast maneuvre
- One maneuver for bone marrow biopsy and aspiration
- Bone marrow aspiration after biopsy
- Minimally invasive, less pain: 11G can replace standard 8G

View it at:
**http://www.sterylab.it/Marketing/Paragon/**


## VIDACARE

### Introducing the Coaxial Biopsy Tray, an innovative and versatile solution for your bone biopsies

OnControl® Bone Access System is the first significant advance in bone biopsy technology in 40 years. Clinicians now have the ability to effectively, safely and rapidly obtain superior bone biopsies. Vidacare® is introducing an addition to the OnControl® Bone Access System, the Coaxial Biopsy Tray designed specifically for multiple bone biopsies in the same location.

- Rapid access for hard bone lesions with a uniquely designed power driven needle technology
- Precise access to the most difficult target lesions
- Enables multiple bone biopsies in the same location
- Exceptional core biopsy samples, quickly and consistently
- Versatile design provides options for your specific needs

Visit us at the 2012 CIRSE Conference in Lisbon at Booth #61
For information and supporting research, please visit **www.vidacare.com**.


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# ESIR 2012 Courses

**European School of Interventional Radiology**

### CLI & Diabetic Disease
**Vienna (AT), October 5-6, 2012**

**This course is designed for physicians at an intermediate level who wish to build on their existing experience in the treatment of critical limb ischaemia.**

**You will learn about:**
- Diagnosis and treatment goals
- Endovascular devices and tools
- Access and interventions including recanalisation techniques
- Specifics of diabetic foot management
- Interdisciplinary teamwork and clinical care

### Radiologia Intervencionista No Vascular
**Bilbao (ES), 19-20 de octubre, 2012**

*(course in Spanish language)*
**El curso tratará los siguientes temas:**
- Técnicas intervencionistas en los conductos biliares, el tracto urinario y el tracto digestivo
- El papel del ultrasonido en el tratamiento aconsejado
- Gestión de complicaciones
- Seguimiento del paciente
- Protección de radiación pertinente

**Este curso está diseñado para médicos de niveles 2-3 (intermedio) quienes desean mejorar sus conocimientos y capacidades en intervenciones no vasculares.**

### Liver Interventions
**Munich (DE), November 9-10, 2012**

**This course is designed for physicians at an intermediate level who wish to broaden their knowledge of liver interventions.**

**You will learn about:**
- Indications for various treatment options
- Ablation techniques
- Embolisation techniques including chemo- and radio-embolisation
- Complications
- Clinical results

### Aortic & Thoracic Stent Graft
**Rome (IT), October 12-13, 2012**

**This course is designed for physicians at an intermediate and advanced level with existing expertise in aortic and thoracic stent grafts who wish to broaden their horizons in the field.**

**You will learn about:**
- Indications for treatment and patient selection
- The role of EVAR and other treatment options
- Pre- and post-procedural imaging
- Device selection and techniques
- Possible complications and their management

### Biliary Percutaneous Interventions
**Prague (CZ), October 26-27, 2012**

**This course is intended for physicians at basic and intermediate level who wish to offer percutaneous biliary interventions.**

**You will learn about:**
- Imaging techniques for diagnosis and work-up
- Practical techniques, including tips and tricks
- Details and comparison of treatments for benign and malignant lesions
- Treatment evaluation
- Contra-indications and complications

**For the detailed programme or further information, please visit www.cirse.org or write to office@esir.org**

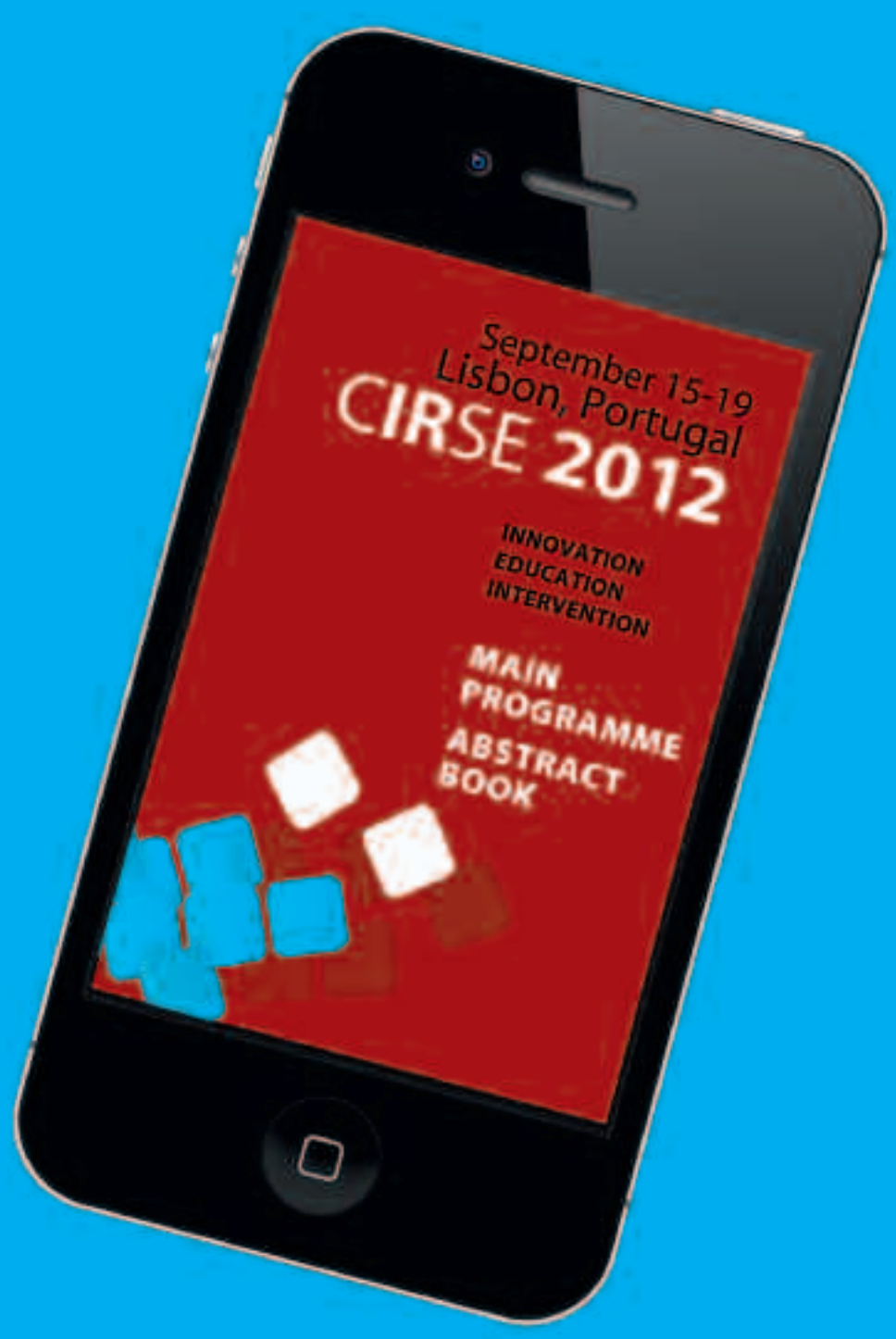
# CIRSE 2012
## WiFi and Mobile App

**At CIRSE 2012, we will once again offer a free Wireless Service to all delegates. This ensures that you can enjoy the many features of the CIRSE 2012 Mobile App all day long!**

## Get connected!

**WiFi Log-in Details**
Username: cirse
Password: cirse2012

*The Wireless Service is available throughout the congress centre (with the exception of the Exhibition Halls Pavilion 1 and 2). It will disconnect after 30 minutes if not actively used.*




## CIRSE goes live!

**Download the brand new CIRSE 2012 Mobile App** and browse through numerous categories, including:

- congress programme and agenda
- speakers
- publications
- exhibitors
- floor plans
- live news feeds
- Lisbon city guide
- and much more…

**Want to receive reminders for your favourite sessions and important congress-related announcements?**

**Enable push notifications and get the most out of your CIRSE experience!**

The above services are kindly sponsored by Cook Medical

# be inspIRed...

## The IRs of the Future

The future of any specialty depends on attracting bright and enquiring minds to it ranks, and on those minds surpassing the existing scientific data with their own innovations and research.

For many medical students, their discovery of interventional radiology comes late in their careers. Radiology education has typically been presented in terms of diagnostics, and the more hands-on, clinically-oriented students often choose their field of specialisation without being fully aware of their options. Indeed, many of CIRSE's most active members started out as surgical registrars.

Additionally, students are rarely given the opportunity to experience a medical congress – even with discounts, the costs can be prohibitive. How can medical trainees get a feel for the environment, the devices, the research and the career options if they are only ever in the classroom?

## Providing support and inspiration

For the last two years, CIRSE has offered local medical undergraduates the opportunity to attend our congress free of charge. CIRSE gave students the chance to see a new side of medicine, and they described the experience as being "exciting and entertaining," "inspirational" and "an optimal concept". Due to the positive feedback received, we are this year expanding the programme to include undergraduates from all over Europe, and offering introductory lectures in both English and Portuguese.

The 2012 initiative has attracted over 300 registered students from across Europe, and we warmly welcome them to our Annual Meeting! To ensure that the participants get the most out of the congress, we have recommended a range of courses and sessions that are especially relevant for medical students, as well as doctors just starting out in their careers.

The popularity of this initiative just goes to show that medical students are eager to learn more about our specialty, and it underlines how important it is for the IR community to constructively interact with them before they choose their career path.

## Welcome to CIRSE 2012!

We are delighted to welcome so many medical students to our congress, and hope you will find the sessions and the atmosphere informative and inspirational. Be sure to join us for the introductory lecture today (11:00 in Portuguese; 13:00 in English), where experienced IRs will explain the various procedures and career options, before letting you explore the discipline for yourself.

## Today's student sessions:

**Introducing IR**
*(in Portuguese language)*
11:00-12:00, Auditorium 4

**Introducing IR**
*(in English language)*
11:00-12:00, Auditorium 4

**Simulation Training – Basics of angioplasty and stenting**
*With kind cooperation from Mentice and Simbionix*
16:30-17:30, Simulator Gallery

**Essentials of Femoral Artery Access and Haemostasis: Proper Techniques and Management of Complications**
16:30-18:00, Cordis Cardiac & Vascular Institute Learning Centre

**Full programme available on:**
- www.cirse.org/students
- CIRSE 2012 App

**IR Congress News is published as an additional source of information for all CIRSE 2012 participants. The articles and advertorials in this newspaper reflect the authors' opinion. CIRSE does not accept any responsibility regarding their content.**
**If you have any questions about this publication, please contact us at madden@cirse.org.**

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