IR congress news

CIRSE 2022 – Barcelona
Sunday, September 11, 2022

PICK UP CONGRESS NEWS EVERY DAY!

For the next three days, you will have the chance to learn everything there is to know about aortic treatment during the Interdisciplinary Endovascular Aortic Symposium during 16 sessions and numerous hands-on workshops in which renowned IR and surgical experts from around the world will scrutinise all aspects of aneurysm repair, from guidelines to challenging cases, from new to technology to possible future developments.

Join us for IDEAS!

IDEAS 2022

Stent conformability and apposition influence long-term durability and remodelling

Mohamad Hamady

Aortic arch pathology frequently presents a range of anatomical challenges including angulation, tortuosity, non-uniformity of the landing zone as well as short length. Despite promising early clinical results, the older generations of thoracic aortic stent grafts are known for their inherent stiffness and sometimes cumbersome deployment mechanisms.

Poor opposition of the stent graft with the aortic wall is associated with an increased risk of endoleak and graft migration. The observation of bird beak configuration (BBC), defined as the non-alignment of the lower edge of the stent against the inner curve of the arch, has been reported to increase the risk of Type 1 endoleak. The formation of bird-beaking and inappropriate oversizing are also blamed for stent collapse reported in some older generation grafts.

The length and angle of BBC are proportional to the incidence of Type 1 endoleak. Dake et al. reported a 50% risk of endoleak at a bird-beak length of 9.5mm and an 80% risk at a bird-beak length of 14 mm [1]. The presence of BBC has also been linked to endoleak and remodelling of type B aortic dissection [2]. The zonal anatomy can influence the stent alignment. In a study of 164 patients, BBC and endoleak were observed more in zone 1 and 2 when compared with zone 0 [3].

The new developments in stent technology have addressed the issues of stiffness and conformability to various degrees [4]. The performance of conformable TAG stent graft (Gore Medical, Flagstaff, AZ, USA) is assessed in 58 consecutive patients with a median age of 75 and a range of aortic pathology including degenerative aneurysms, dissection, penetrating aortic ulcers, and intramural haematoma. One third of patients are treated in an emergent setting. The technical success rate of the index procedure is 98%. One Type 1 endoleak is detected and treated with stent extension. The interesting finding is that arch angulation, arch width and landing zone angulation have not significantly changed pre and post-procedure despite stent landing in type III arch in more than two-thirds of cases (figures). Two cases of bird beaking configuration are noted with no associated endoleak nor stent collapse. Both BBC cases are noted in zone 2 and in type III arch. (paper under review for publication).

The use of Conformable TAG with Active Control (Gore Medical, Flagstaff, AZ, USA) has been reported in a retrospective series of 30 consecutive patients. The indications are post-dissection aneurysms, degenerative aneurysms, IMH, and traumatic aortic injuries with 63% of patients being treated in elective settings and the rest in emergent ones. Besides the high technical and clinical success rate, there is no BBC nor Type 1 endoleak noticed in this cohort of patients. The authors report the use of active control for optimisation of alignment in all cases [5].

Similar results are observed in the SURPASS registry. 127 patients are included in this registry to treat a range of aortic diseases. The technical success is achieved in all cases. Active control to optimise wall opposition of the stent graft to the inner curvature of the aortic arch is reported in 60% of patients and the desired effect is achieved in all cases. No BBC or migration is noted in this series [6].

Other manufacturers have also made changes to the design of respective stent grafts. A series of 38 patients with challenging arch anatomy including short landing zone and increased arch and landing zone angulation are treated with custom-made scallop Relay (Terumo Aortic, Sunrise, Fla). Technical success is reported in 98% and non-disabling strokes occurred in 8%. At a median of 4.5 years, all-cause and aorta-related survival rates are 72% and 85%, respectively. Freedom from reintervention to the thoracic aorta and PLZ is 92% and 97%, respectively. The BBC is observed in approximately 28% of this cohort, despite the extreme adverse anatomical features in the enrolled subjects including a very short landing zone prior to stent insertion (median 5 mm) (median sealing zone post scallop insertion of 26 mm). Two-thirds of patients have acute angulation with type II and III arch. The mid and long-term follow-up show no type I endoleak or evidence of 5 mm or more migration [7].

Don't miss it!

What is happening in the aortic arch?
Sunday, September 11, 08:30-09:30
Auditorium 2

Mohamad Hamady
IDEAS Chairperson

Professor Hamady completed his clinical training in interventional radiology at King's College-London/ St Thomas' & Guys hospitals. He joined the Imperial College NHS Trust in 2003 as a consultant in clinical and interventional radiology. He is currently professor of practice in image guided surgery and interventional radiology at Imperial College London.

Professor Hamady is a world-renowned expert on aortic and peripheral vascular interventions and advanced embolisation techniques. He has done extensive research work in complex endovascular aortic repair, simulation training and endovascular robotics. He has more than 185 papers in peer-review journals and 16 book chapters. He has served in several positions within the British Society of Interventional Radiology (BSIR), including as the Chair of the Scientific and Education Committees, and as the Society's Secretary. Currently, Professor Hamady is the BSIR Council Lead for IR Workforce in the UK, the Head of Training Program for Interventional Radiology in Greater London and the Chair of the Scientific Committee of IDEAS/CIRSE 2020-2022.

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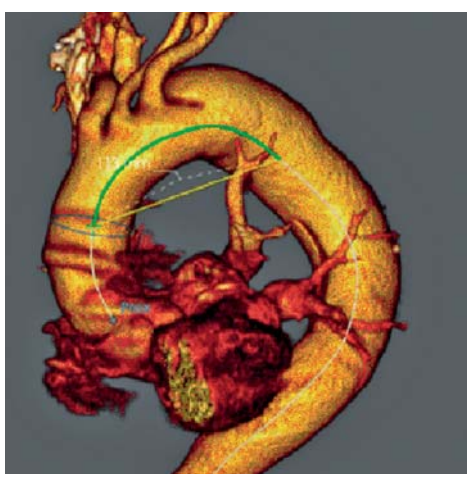
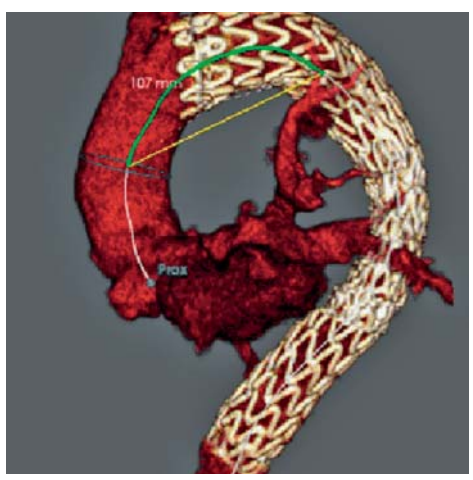
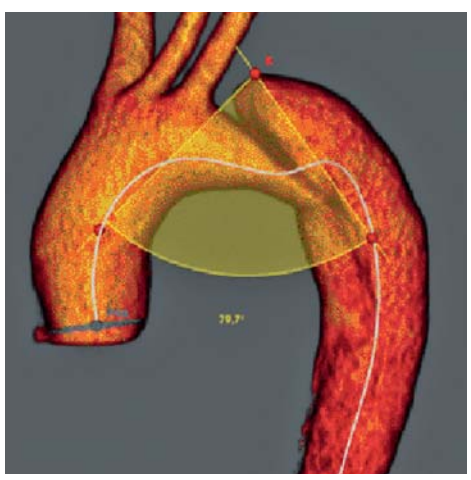
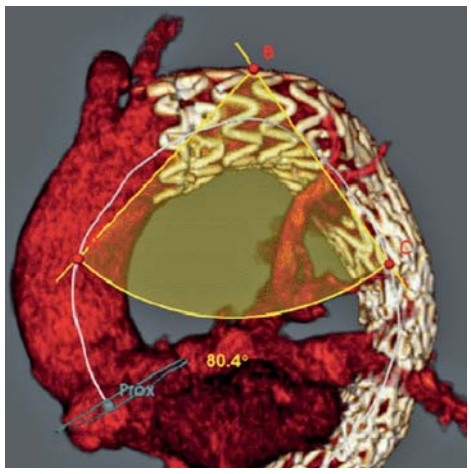
Similarly, Valiant Captiva and Valiant Navion stent grafts (Medtronic, Santa Rosa, CA) have reported encouraging results regarding technical success and low incidence of Type 1 endoleak and very low migration. Unfortunately, Valiant Navion has been withdrawn from the market because of reported stent fractures. There has been no comprehensive study to assess the conformability and incidence of bird beaking related to this stent type [8,9].

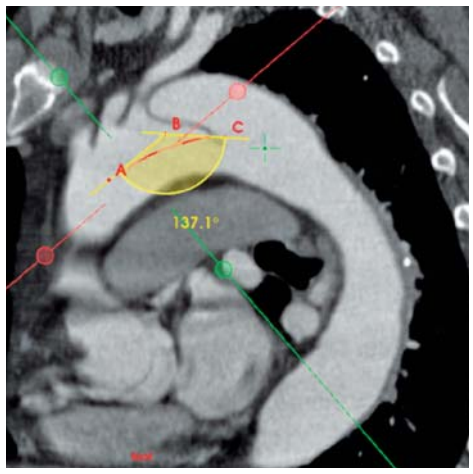
Future directions should focus on an in-depth understanding of aortic movement during the cardiac cycle as well as physiological flow characteristics and their impact on stent graft long-term durability. Refining stent cloth material and the skeleton to adapt to the physiological changes post stent implantation should be properly appraised. Platforms with a lower profile and delivery systems with accurate deployment mechanisms should also continue to evolve [10-12].

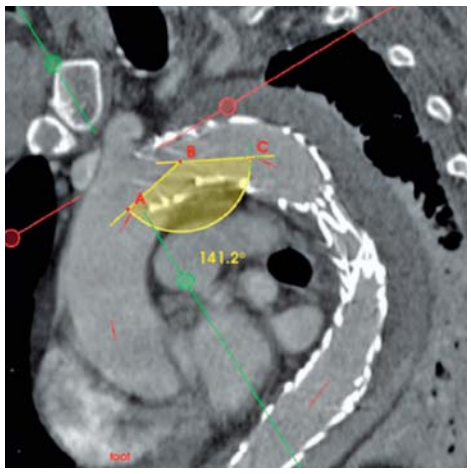












References:

1. Ueda, T., Fleischmann, D., Dake, M. D., Rubin, G. D., & Sze, D. Y. (2010). Incomplete endograft apposition to the aortic arch: bird-beak configuration increases risk of endoleak formation after thoracic endovascular aortic repair. Radiology, 255(2), 645–652.
2. Cao L, Ge Y, He Y, Wang X, Rong D, Lu W, Liu X, Guo W. Association between aortic arch angulation and bird-beak configuration after thoracic aortic stent graft repair of type B aortic dissection. Interact Cardiovasc Thorac Surg. 2020 Nov 1;31(5):688-696.
3. Kudo T, Kuratani T, Shimamura K, Sawa Y. Determining the Optimal Proximal Landing Zone for TEVAR in the Aortic Arch: Comparing the Occurrence of the Bird-Beak Phenomenon in Zone 0 vs Zones 1 and 2. J Endovasc Ther. 2020 Jun;27(3):368-376.
4. Canaud L, Cathala P, Joyeux F, Branchereau P, Marty-Ané C, Alric P. Improvement in conformability of the latest generation of thoracic stent grafts. J Vasc Surg. 2013 Apr;57(4):1084-9
5. Mariani C, van der Weijde E, Smith T, Smeenk HG, Vos JA, Heijmen RH. The GORE TAG conformable thoracic stent graft with the new ACTIVE CONTROL deployment system. J Vasc Surg. 2019 Aug;70(2):432-437.
6. Torsello GF, Argyriou A, Stavroulakis K, Bosiers MJ, Austermann M, Torsello GB; SURPASS Registry Collaborators. One-Year Results From the SURPASS Observational Registry of the CTAG Stent-Graft With the Active Control System. J Endovasc Ther. 2020 Jun;27(3):421-427.
7. Hanna L, Abdullah A, Kashef E, Riga C, Jenkins M, Bicknell C, Gibbs R, Hamady M. Four-year results of the Bolton relay proximal scallop endograft in the management of thoracic and thoracoabdominal aortic pathology with unfavorable proximal landing zone. J Vasc Surg. 2021 Nov;74(5):1447-1455.
8. Verzini F, Desai N, Arko FR 3rd, Panneton JM, Thaveau F, Dagenais F, Guo J, Azizzadeh A. Clinical trial outcomes and thoracic aortic morphometry after one year with the Valiant Navion stent graft system. J Vasc Surg. 2021 Aug; 74(2):569-578.e3.
9. Conrad MF, Tuchek J, Freezor R, Bavaria J, White R, Fairman R. Results of the VALOR II trial of the Medtronic Valiant Thoracic Stent Graft. J Vasc Surg. 2017 Aug;66(2):335-342.
10. van Bakel TMJ, Arthurs CJ, Nauta FJH, Eagle KA, van Herwaarden JA, Moll FL, Trimarchi S, Patel HJ, Figueroa CA. Cardiac remodelling following thoracic endovascular aortic repair for descending aortic aneurysms. Eur J Cardiothorac Surg. 2019 Jun 1;55(6):1061-1070.
11. Dobson G, Flewitt J, Tyberg JV, Moore R, Karamanoglu M. Endografting of the descending thoracic aorta increases ascending aortic input impedance and attenuates pressure transmission in dogs. Eur J Vasc Endovasc Surg. 2006 Aug;32(2):129-35.
12. Sengupta S, Hamady M, Xu XY. Haemodynamic Analysis of Branched Endografts for Complex Aortic Arch Repair. Bioengineering (Basel). 2022 Jan 18;9(2):45.

Venous interventions in the liver of non-cirrhotic patients: pushing the limits

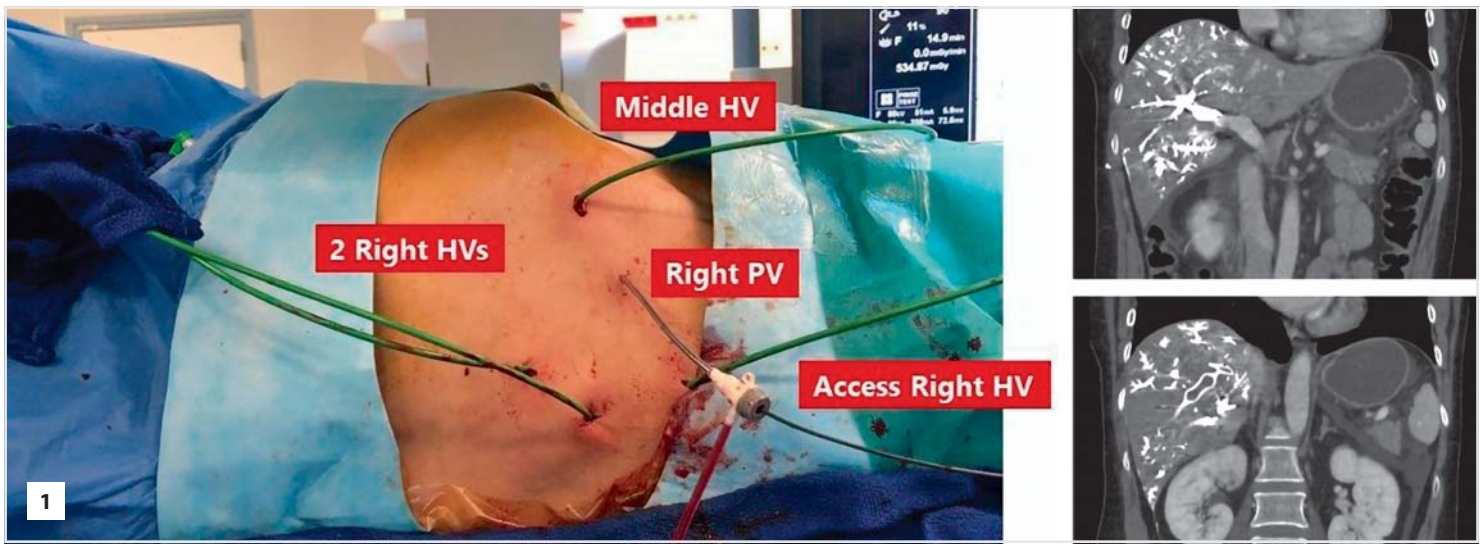
Boris Guiu

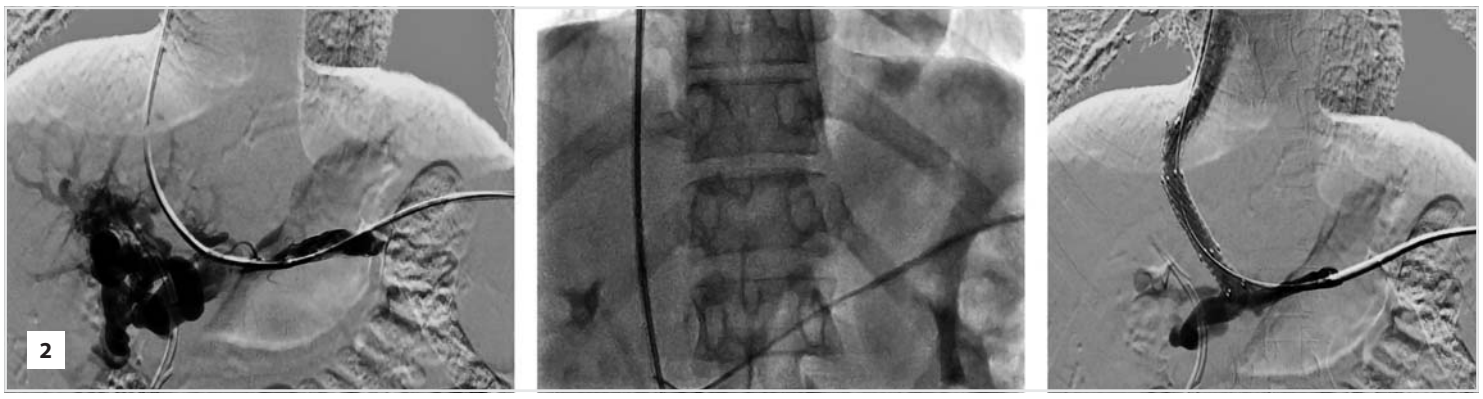
The liver is a unique organ where both venous inflow and outflow coexist. The liver's complexity has led to the development of multiple venous interventions in the liver. In recent years, new embolisation or recanalisation techniques have been described, especially in non-cirrhotic patients and should now be disseminated in the interventional radiology community. Here, we will focus on two typical examples: liver venous deprivation (LVD) and portal vein recanalisation (PVR).

Portal vein embolisation (PVE) was set decades ago as the standard of care for liver preparation before major hepatectomy. Despite a high (ie. 80%) clinical success (ie. resection) rate after PVE, many techniques have been proposed to improve the results of PVE even more by accelerating and augmenting the future liver remnant (FLR) regeneration. In 2016, the LVD technique was introduced for the first time, combining both hepatic vein and portal vein embolisation during the same procedure with the aim of inducing FLR growth [1]. Functional data from hepatobiliary scintigraphy showed >50% FLR functional increase in just seven days, thereby outperforming the results of any other preparation technique, including ALPPS or even hepatectomy. The attractive initial results [2], subsequently confirmed by cohort studies from other groups, sparked enthusiasm around this novel technique. Since then, several initiatives have been undertaken to reach level one evidence since only single-centre retrospective cohort studies have been published. In France, the HYPERLIV-01 randomised controlled trial comparing PVE with LVD (where glue is used in hepatic veins in addition to proximal plugs) has already completed more than two-thirds of its accrual in eleven centres. The international DRAGON initiative was launched a couple of years ago with the ultimate goal of conducting prospective trials. The EuroLVD international registry has also been opened to inclusions following the model of the ALPPS registry. All these studies will certainly help to define the place of LVD in the future.

Chronic extrahepatic portal vein occlusion is often ignored in non-cirrhotics due to insufficient knowledge of this rare condition (prevalence = 3/100 000) with limited clinical consequences at an early stage in most cases. It often affects young adults. Prothrombotic disorders, myeloproliferative neoplasm or local risk factors (pancreatitis, surgery, trauma) are the main etiologies. No cause is identified in 30% of cases. Complications include abdominal pain, portal hypertension leading to variceal bleeding, ascites or hypersplenism, and portal cholangiopathy. Some of them may be life-threatening and even require complex management, such as multiorgan transplantation. Therefore, early recognition and appropriate management of extrahepatic portal vein occlusion are essential.

In the past two years, portal vein recanalisation (PVR) with or without TIPS insertion has been shown to be feasible, safe and efficient in non-cirrhotics with excellent long-term outcomes [3]. Despite the fact that portal cavernoma has long been considered a contraindication to TIPS, it was reported last year in a series of 39 noncirrhotic patients with cavernomas and mesenteric venous thrombosis that TIPS was technically feasible and did not adversely affect liver function [3]. Most patients (87%) demonstrated objective clinical benefit as assessed by hepatologists. Contrary to cirrhotics, only a small minority of patients exhibited encephalopathy after TIPS. At 36 months, an 81% overall patency of the TIPS was reported in these patients. This year, another team published the results of PVR (but without TIPS insertion) in 31 noncirrhotic patients with chronic portal vein occlusion [4]. Technical success was obtained in 27 patients (87%). As in the previous series, no mortality was reported. Most patients (78%) with PVR technical success were free of portal hypertension complications at five years. Interestingly, improvement of sarcopenia and reduction in spleen volume was also observed following successful PVR. Great debates are coming up on the necessity of TIPS in these patients. Advanced liver fibrosis or atrophy/absence of intrahepatic portal vessels certainly require TIPS insertion in addition to PVR. On the contrary, patients with limited occlusion of the portal system, healthy liver and easy access to intrahepatic portal vessels certainly do not require any TIPS. Still, for in-between situations, the debate remains open! Access to the portal system can be obtained in different ways: trans-hepatic, trans-jugular, trans-splenic, trans-mesenteric or trans-ileal. Since IRs can face many clinical situations and various extent of portal vein occlusion, combinations of different portal accesses may be necessary to successfully recanalise the portal system. We definitely need to learn them and practice!





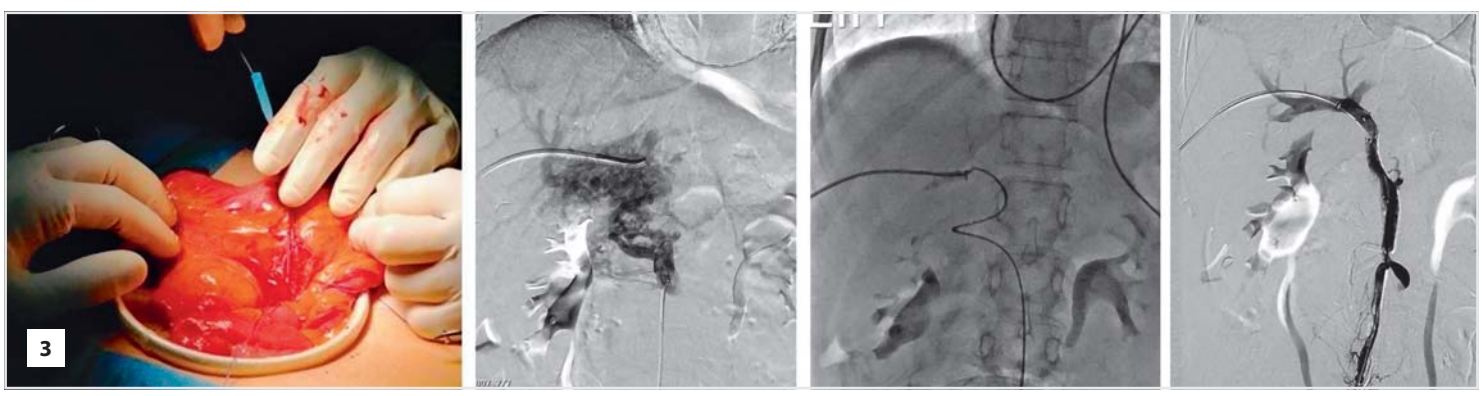


Figure 1: Extended liver venous deprivation (embolisation of right [n=2], middle, and accessory-right hepatic veins + right portal vein embolisation).

Figure 2: PVR-TIPS in a 34-year-old female patient with portal cavernoma and cholangiopathy.

Figure 3: PVR using both trans-hepatic and trans-ileal access in a 46-year-old female with portal cavernoma. Restoration of SMV inflow through a cavernomatous collateral vein.

Don't miss it !

Andreas Gruentzig Lecture
14:30-15:00
Auditorium 1

Boris Guiu
St-Eloi University Hospital
Montpellier/FR

Boris Guiu is chair of the department of radiology at the Saint Eloi University Hospital and professor of radiology at the University of Montpellier, the oldest school of medicine in Europe. His primary research interest is interventional radiology of the liver with a special interest in intra-arterial and percutaneous treatments in a high-end multimodal interventional suite.

Dr. Guiu is a member of CIRSE, EASL, AASLD, European Society of Radiology and French Radiological Society. In 2019, he won the European Award of Excellence and Innovation in Interventional Radiology. He serves as a reviewer for many journals, including The Lancet Gastroenterology & Hepatology, The Journal of Hepatology, Hepatology Communications, CVIR and JVIR. He has been appointed as co-chair of the IO4IO task force by CIRSE. He serves as an editor for Hepatobiliary Surgery and Nutrition and Cancers journals. He is a faculty member of ECIO, ET, CIRSE, GEST and SIO. Dr. Guiu has published over 240 peer-reviewed papers. He described the liver venous deprivation technique, combining portal and hepatic vein embolisation for liver preparation before major hepatectomy. He is the coordinator of seven clinical trials in liver interventional radiology. The most recent clinic trial studies randomising immune-checkpoint inhibitor/antiangiogenic and radiofrequency ablation versus radiofrequency ablation in small HCC.

Innovative research on the treatment of liver tumours has always been a pursuit in his academic career.

References:
1. Guiu B, Chevallier P, Denys A, Delhom E, Pierredon-Foulongne MA, Rouanet P, et al. Simultaneous trans-hepatic portal and hepatic vein embolization before major hepatectomy: the liver venous deprivation technique. European radiology. 2016;26(12):4259-67.
2. Guiu B, Quenet F, Panaro F, Piron L, Cassinotto C, Herrerro A, et al. Liver venous deprivation versus portal vein embolization before major hepatectomy: future liver remnant volumetric and functional changes. Hepatobiliary Surgery and Nutrition. 2020;9(5):564-76.
3. Knight GM, Clark J, Boike JR, Maddur H, Ganger DR, Talwar A, et al. TIPS for Adults Without Cirrhosis With Chronic Mesenteric Venous Thrombosis and EHPVO Refractory to Standard-of-Care Therapy. Hepatology. 2021;74(5):2735-44.
4. Artru F, Vietti-Violi N, Sempoux C, Vieira Barbosa J, Becce F, Sah N, et al. Portal vein recanalisation alone to treat severe portal hypertension in non-cirrhotic patients with chronic extrahepatic portal vein obstruction. JHEP Rep. 2022;4(8):100511.

Taking IR research to the next level

nextRESEARCH EMPOWERED BY CIRSE

Next Research is a contract research organisation (CRO) established and owned by the CIRSE Foundation, dedicated to promoting evidence-based medicine in interventional radiology.
With 10 dedicated staff members, we at Next Research aim to provide research services tailored to image-guided, minimally invasive medicine as well as educational activities geared towards the IR community.

Mission

By establishing a link between practitioners and industry, we ensure that data needs can be identified and addressed. Our mission is to conduct data collection that yield a real value to practitioners, patients, and industry.

Services

Our services include:

- **Clinical studies**
  We conceptualise, design, set-up, run, analyse, and disseminate results of clinical data collections with scientific sponsorship by CIRSE society
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In our webinars and training courses, we address the knowledge and skill gap many young IRs are facing with regards to clinical research. We thereby, equip young talents in IR with the skills, knowledge, and tools necessary to become leaders of tomorrow.

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With experienced staff, a network of hundreds of medical professionals, as well as sites across Europe, all our projects profit from expert input from step one. The integration of clinical expertise with a high-quality research service will make the difference to your data collection or educational project.

PROJECT UPDATES

CIRT – CVIR Award for Most Cited Paper

The first manuscript coming out of CIRT: *Clinical Application of Trans-Arterial Radioembolization in Hepatic Malignancies in Europe: First Results from the Prospective Multicentre Observational Study CIRSE Registry for SIR-Spheres Therapy (CIRT),* published in 2020, has received an award for most-cited paper in CVIR.

CIEMAR

The patient inclusion period of CIEMAR is planned to end in the first quarter of 2023, which will be followed by three years of follow-up. As we are pushing for 500 patients, we want to thank all involved investigators and hospital staff across Europe!

CIREL, ESMO World Congress on Gastrointestinal Cancer and CIRSE

We are happy to report that the long-term effectiveness results of the CIRSE-sponsored research project, CIREL, were shared and discussed with GI oncologists at ESMO-GI for the first time. Co-Chairperson and oncologist Prof. Julien Taieb presented a poster illustrating interim effectiveness results. Co-Chairperson and interventional radiologist Prof. Philippe Pereira will now discuss the first look into the effectiveness results with interventional radiologists at a presentation during CISE 2022.

Data collection and follow-up of CIREL has ended; stay tuned for more presentations and publications in 2023!

Prof. Julien Taieb presenting CIREL data at ESMO-GI 2022

CIRT-FR

As of the beginning of August 2022, the follow-up period for CIRT-FR has ended and publications are being prepared at the moment. We want to thank all involved investigators and hospital staff in France!

Electrochemotherapy (ECT), from skin to liver – our newest research project RESPECT will help to further guidelines

Sponsored by CIRSE and managed by its CRO, Next Research, The RegiSTry on Percutaneous ElectroChemoTherapy (RESPECT) is a prospective, Europe-wide, multi-centre, single-arm observational study that will collect data on percutaneous ECT (pECT) using the CLINIPORATOR® in patients with any type of primary or secondary liver malignancy.

ECT is a non-thermal local tumour ablation technique (LAT) that combines chemotherapy with reversible electroporation to transiently permeabilize the cell membrane and thereby increase the cytotoxicity of the chemotherapeutic agent. ECT is recognized by National and European guidelines as a safe and effective option for the management of primary skin cancer and cutaneous metastases.

In the context of liver malignancies, ECT overcomes limitations encountered by more established LATs as it can be used in the vicinity of critical structures, and is not affected by the heat-sink effect of large blood vessels which reduces the efficacy of thermal ablation. Recent smaller studies have introduced pECT as a minimally invasive treatment option.

Co-chaired by Prof. Philipp Wiggermann and PD. Dr Attila Kovács, the multidisciplinary RESPECT Steering Committee consists of a panel of interventional radiologists and oncologists from different centres in Europe and the USA, who provide crucial scientific support to the study.

RESPECT aims to enrol 250 patients over a period of 2 years, starting in September 2022. With a maximum follow-up period of 3 years, the registry is projected to end in September 2027.

More information on RESPECT is available at **www.nextresearch.org/respect** or **www.clinicaltrial.gov** (ID: NCT05267080).

Visit us at booth # 24 vis-à-vis the News on Stage area!

OUR PROJECTS AT CIRSE 2022

CIREL

CIREL data will be presented by the Co-Chairperson Prof. Philippe L. Pereira from the SLK-Kliniken Heilbronn GmbH in Germany, under the title *'Early and long-term effectiveness results from CIREL, the multi-centre observational study on irinotecan-TACE in CRLM'* during the session
SP 3105 – TACE in liver
on Tuesday, Sept. 13th, 17:30-18:30 in Room 115.

CIEMAR

The **CIEMAR** abstract will be presented by the CIEMAR Investigator Prof. Martijn Meijerink from the University Medical Centre Amsterdam in the Netherlands, under the title *'First look into CIEMAR: patient selection, treatment details and early safety data of the European-wide observational study on MWA in CRLM with curative intent'* during the session
SP 2206 – Ablation of metastases
on Monday Sept. 12th, 16:15-17:15, in Room 114.

RESPECT

RESPECT will be introduced to the CIRSE community by its Chairpersons Prof. Philipp Wiggermann and PD Dr. Attila Kovacs, under the title *'RESPECT: a new Europe-wide prospective multi-centre observational study evaluating the effectiveness of percutaneous electrochemotherapy for liver cancer'* during the session
MPI 2001 – Clinical trials in embolotherapy and interventional oncology: Meet the PI
on Monday, Sept 12th, 13:00-14:00 in News on Stage.

Debulking atherectomy improves patency: Pro

Stavros Spiliopoulos

The mechanism of balloon angioplasty is based on plaque disruption and displacement within the arterial wall. Using balloon angioplasty, the atheroma is not removed but crushed and redistributed within and along the arterial wall. In the presence of eccentric, severely calcified atheromas, balloon angioplasty performs poorly, flow-limiting dissection or recoiling is common, and bail-out stenting is necessary to achieve immediate technical success [1, 2]. Atherectomy enables percutaneous atheroma removal, which could allow for improved acute luminal gain even following low-pressure angioplasty, resulting in minimal vessel barotrauma, and thus less negative remodelling and neointimal hyperplasia [3].

Overall, randomised and observational data indicate that atherectomy results in decreased dissection and bail-out stenting rates, while plaque removal seems to optimise vessel-wall drug uptake and enhance the anti-restenotic effect of drug-coated balloons (vessel preparation concept) [4, 5]. This appealing prospect of plaque removal and vessel preparation has led to extensive clinical investigation. At the same time, the use of atherectomy devices have exponentially increased over the past decade to surpass angioplasty and stenting to become the most frequently used endovascular intervention for femoropopliteal lesions in the United States [6]. However, the question remains, can atherectomy increase patency outcomes of endovascular peripheral arterial interventions?

Although it seems quite logical to obtain better patency outcomes by removing the atheroma rather than displacing it, until 2017, published data from nine major prospective registries and five randomised controlled trials (RCT) were contradictive and did not support the superiority of percutaneous atherectomy over standard peripheral balloon angioplasty or stenting in terms of patency or limb salvage [2]. However, in one RCT, atherectomy resulted in fewer re-interventions when treating femoropopliteal in-stent restenosis (six-month TLR: 26.5% vs. 48.2%; p<0.005) [7]. Moreover, atherectomy groups in all five RCTs demonstrated consistently numerically superior one-year patency/TLR-free rates (ranging between 80% and 93%) compared to the control groups, suggesting that atherectomy could result in significantly superior patency outcomes if a larger number of patients were investigated [2]. This numerical superiority in patency was also noted in two recently published multicentre RCTs investigating vessel preparation using infrapopliteal orbital and directional atherectomy followed by PCB angioplasty versus PCB angioplasty alone [8, 9]. Following these recent trials, Usai et al. conducted an updated systematic review on infrainguinal atherectomy plus PCB angioplasty, demonstrating excellent pooled one-year primary and secondary patency rates of 92% and 98%, respectively [10].

Atherectomy has also been proposed as a valid endovascular solution for hard, eccentric calcified lesions of "no-stenting" areas such as the distal crural vessels and pedal arch with the re-intervention-free rate exceeding 90%, as well as of traditionally surgical areas such as the common femoral artery, in which the three-year primary patency rate was approximately 85% and therefore comparable to open surgery [11, 12].

Currently available data indicate that debulking atherectomy minimises dissection and bail-out stent rates and offers numerically superior patency rates in native infrainguinal arterial lesions. Adequately powered multicentre RTCs are required to demonstrate statistical significance. Statistically superior patency rates were noted compared to balloon angioplasty when treating in-stent restenosis. Presumably, the "stentless" acute luminal gain obtained by debulking atherectomy may ultimately lead to improved long-term clinical outcomes and longer "surgery-free" intervals, typically required in younger patients, even if primary patency rates are similar. By analogy to coronary practice, the individualised choice of different atherectomy devices based on the lesion type and anatomical location could further improve patency outcomes [12-14].

Don't miss it !
Have we made any progress in peripheral arterial disease treatment?
Saturday, September 11, 10:00-11:00
Auditorium 1

Stavros Spiliopoulos
National and Kapodistrian University of Athens
Athens/GR

Dr. Spiliopoulos is an associate professor of interventional radiology at the 2nd Department of Radiology of the National and Kapodistrian University of Athens' "Attikon" University General Hospital in Greece. His clinical work includes vascular, non-vascular, and interventional oncology procedures. He teaches radiology and interventional radiology for pre- and post-graduate courses at the University of Athens School of Medicine and participates as a primary investigator or co-investigator in clinical and experimental investigational protocols including multicentre, European, and global studies. Dr. Spiliopoulos is an honorary senior lecturer in the Institute of Medical Sciences at the University of Aberdeen. His research interests include the endovascular management of PAD and dialysis vascular access, personalised vascular medicine, and loco-regional treatments of solid organ malignancies.

For this article's references, please scan the QR code on the right.

Debulking atherectomy improves patency: Con

Ulf Teichgräber

Although atherectomy in peripheral arteries has been reported since the 1980s, evidence on clinical efficacy and safety is lagging behind [1]. A recent systematic Cochrane review on atherectomy versus plain old balloon angioplasty (POBA) or primary stenting reported on seven randomised controlled trials (RCTs) that included a total of 527 participants. However, the evidence was very uncertain due to bias, small-scale studies and heterogeneity [1]. Neither twelve-month primary patency nor target vessel revascularisation (TVR) differed significantly from POBA (relative risk [RR] 1.20, p = 0.42 and RR 0.59, p = 0.24, respectively). There was also no significant difference in mortality and cardiovascular events to angioplasty with or without stenting. Although in the RCTs, atherectomy reduced dissection and bailout stenting rates (RR 0.28, p < 0.01; RR 0,26, p = 0.01), distal macro-embolisation was seen more frequently with atherectomy (RR 2.51, p = 0.19) [1]. In addition, the large-scale Vascular Quality Initiative (VIQ) registry (12,499 patients) found more procedural-related complications, including dissection, bailout stenting and embolisation with femoropopliteal atherectomy compared to POBA [2]. Another evaluation of a large Medicare population (15,279 patients) that included patients with claudication who underwent their first femoropopliteal intervention, revealed 60% had an atherectomy procedure done. A total of 46% of these patients needed a reintervention within a median of 435 days. This was significantly more frequent than after an initial intervention without atherectomy (27% reinterventions, p > 0.001) [3]. To our knowledge, no direct comparison of atherectomy to bypass surgery has been provided to date.

European guidelines on peripheral artery diseases do not issue a recommendation on atherectomy, but the American College of Cardiology Appropriate Use Criteria Task Force [4] rates infra-inguinal atherectomy as "may be appropriate" and attributes this to paucity of comparative data and expense of the procedure. The Society of Cardiovascular Angiography and Interventions (SCAI) consensus guidelines on device selection differentiate their recommendation on atherectomy according to laser, directional, orbital/rotational and excisional/aspiration atherectomy. They advise against atherectomy as intended definitive therapy except for laser atherectomy of in-stent restenosis [5, 6]. Only as an adjunctive treatment, orbital atherectomy may be considered for severely calcified, undilatable lesions [6].

Despite insufficient evidence and restrictive recommendations, utilisation of atherectomy has more than doubled during the last decade [7]. However, there was a wide distribution of practice patterns, with one peak at 0% and another at >80% of initial atherectomy procedures. Independent predictors for the primary use of femoropopliteal atherectomy were claudication (vs. critical limb-threatening ischaemia, odds ratio [OR] 1.5) and diabetes (OR 1.1) as patient-level characteristics and working in ambulatory surgical centres or office-based laboratories (71-100% of service, OR 8.0), physician male sex (OR 2.1), and fewer years since graduation (OR 1.4 – 2.7), as physician-level characteristics. Unfortunately, there is obviously a relation to reimbursement. This phenomenon is observed not only in the United States, where Medicare reimbursed 90% of the overall 2019 budget for initial femoropopliteal interventions for atherectomy that comprised only 54% of patients [8].

A feasible endovascular alternative to femoropopliteal atherectomy was presented in 2018 as the pave-and-crack technique by Dias Neto et al. (Leipzig registry, 67 patients) [9]. Briefly, after local anaesthesia along the calcified segment, access was achieved antegrade by using re-entry systems or by performing an ipsilateral retrograde or, as in most of the patients, a bidirectional approach (if all other means failed). Subsequently, thorough pre-dilation was conducted. If perforation occurred or was anticipated (in 59% of the procedures), a covered stent graft was implanted ("pave"). Thereafter, a second aggressive balloon dilation could have been necessary ("crack"). Finally, the lesion was relined with an interwoven Supera stent to resist remaining recoil forces. Technical success (< 30% residual diameter stenosis) was achieved in 98% of lesions, and Kaplan-Meier twelve-month estimates of primary patency and freedom from target lesion revascularisation were 79% and 85%, respectively.

In conclusion, more robust evidence on efficacy and safety is needed from large-scale RCTs on different lesion characteristics with different comparators, including bypass surgery. Until then, attention should be paid to existing guideline recommendations and appropriate use criteria documents that already have set the right course. Finally, health care systems must take care not to create false incentives.

Don't miss it !
Have we made any progress in peripheral arterial disease treatment?
Sunday, September 11, 10:00-11:00
Auditorium 1

Ulf Teichgräber
Jena University Hospital
Jena/DE

Prof. Teichgräber is chairman of the department of radiology and dean of medical education at the Jena University Hospital, Friedrich-Schiller University Jena in Germany. He obtained his medical degree at Hannover Medical School in Germany and did his training in radiology at Charité University Hospital in Berlin. His major topics of interest include intra-arterially delivered therapies, implementation of artificial intelligence to support diagnostics and in medical education, anchoring ultrasonography into undergraduate medical training. He is principal investigator of a series of randomised controlled, multicenter trials on drug-coated balloon angioplasty.

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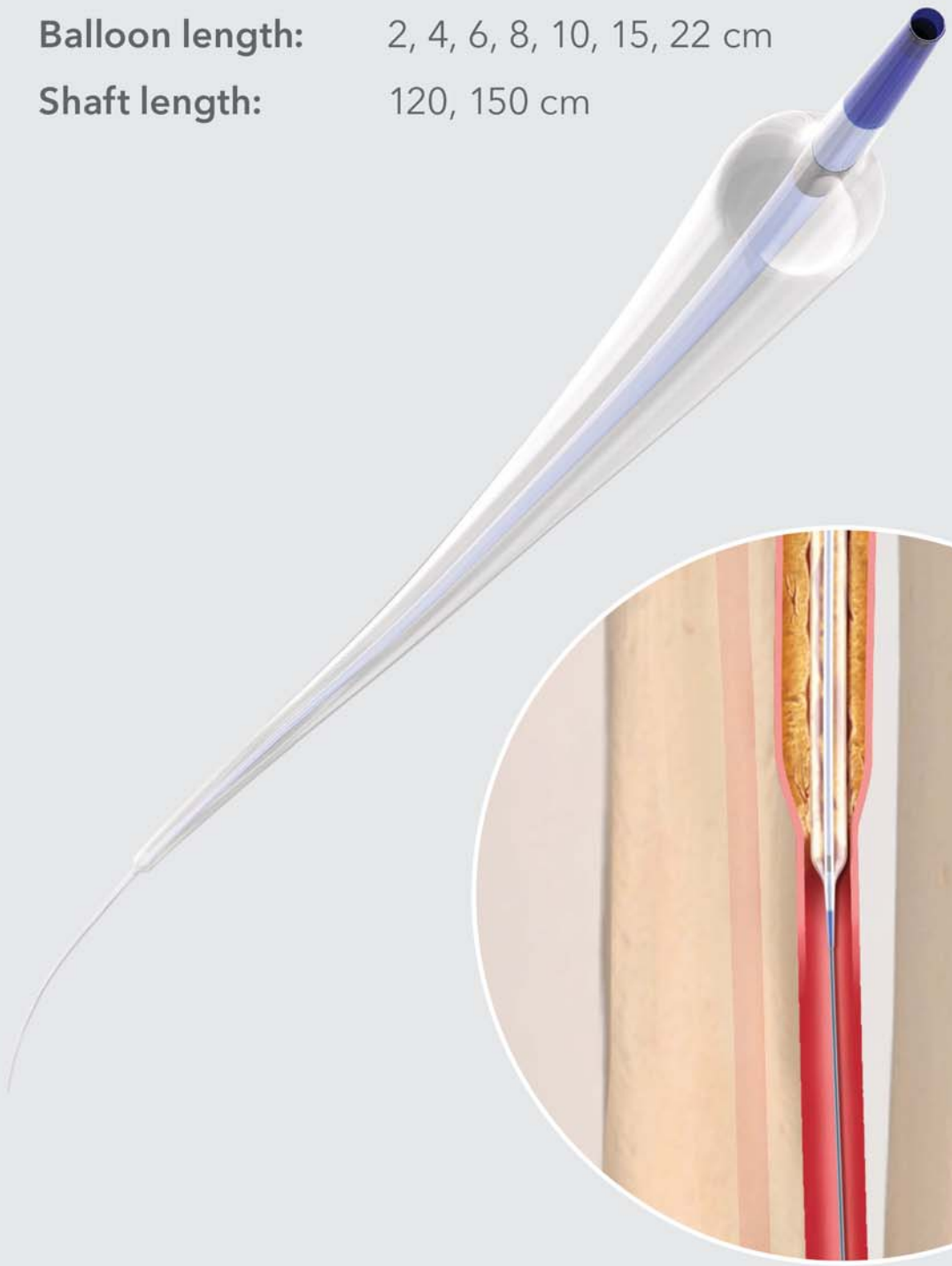

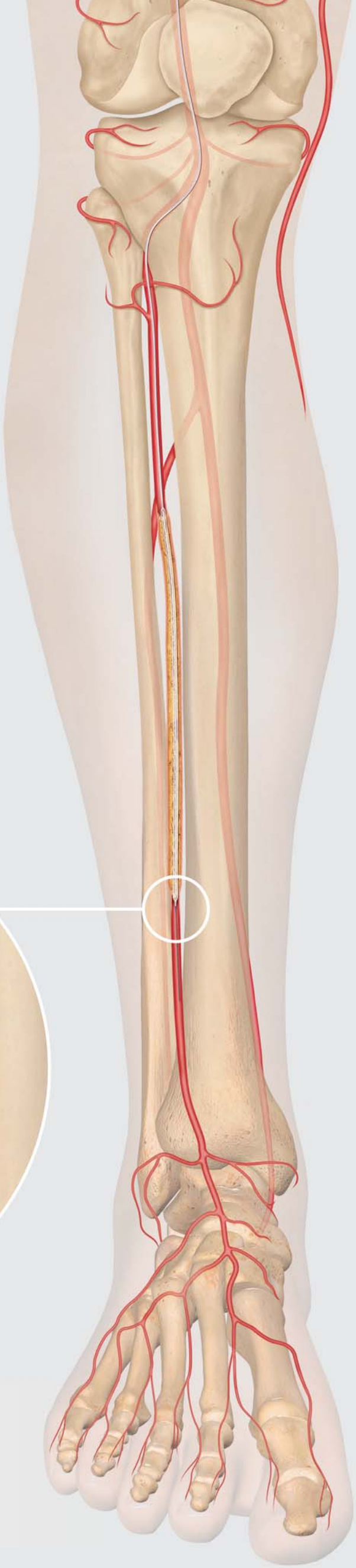

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Liquid agents hands-on device trainings

Romaric Loffroy

Don't miss it !
Hands-on Device Training
Embolisation: materials & tools – liquid agents
Sunday, September 11, 09:45-11:15
Room 134

Liquid embolisation is increasingly being used for peripheral applications. High embolic efficiency and good clinical results are the main strengths of liquid embolic agents. However, management of and practice with liquid embolics are different and a bit more complex than when using conventional coils or particles. Liquid embolics can generally be classified into three main groups; cyanoacrylates (glue), non-adhesive DMSO-based embolics, and sclerosants. Despite their similarities, these products also demonstrate some major differences. Among cyanoacrylates, there are also some distinctions IRs should be aware of.

Only a few cyanoacrylates for endovascular use are officially available on the worldwide market: Glubran2® and Trufill® have the CE mark and FDA approval, respectively. Histoacryl® has neither the CE mark nor FDA approval for endovascular interventions, for which it is widely used off-label. Its faster polymerization rate compared to other glues makes Histoacryl® more challenging to use. Glubran®2 has the advantage of being very inexpensive compared to Trufill® (about 100 € versus 2,000 $ per 1 mL vial) and available worldwide, whereas Trufill® is used only in the United States. A new α-hexil-cyanoacrylate glue (MagicGlue®, Balt Extrusion, Montmorency, France), known as Purefill® (Peters Surgical, Bobigny, France), was recently developed and has exhibited short- and long-term occlusive efficacy and histopathologic responses similar to those seen with Histoacryl® and Glubran®2. However, α-hexil-cyanoacrylate seems to have less adhesive strength compared to Histoacryl® and Glubran®2. Cyanoacrylate has a number of advantages, although there is a learning curve for the operator [1], [2]. The liquid polymerizes rapidly upon contact with blood. However, dilution in Lipiodol Ultra Fluid (UF) (Guerbet, Aulnay-sous-Bois, France) decreases the speed of polymerization, thus allowing complete and still rapid devascularization of the vascular bed. The addition of Lipiodol UF also allows monitoring of the flow of embolic material and detection of possible reflux along the microcatheter. Contrary to microparticles and other liquid agents, cyanoacrylate adheres to the vessel wall, inducing substantial inflammation and remodeling that contribute to lumen obliteration. Another advantage of a glue/Lipidol mixture is that the fast polymerization, as well as the radiopaque feature, potentially decreases the risk of non-target embolisation as compared to microparticles.

DMSO-based embolics include ethylene-vinyl-alcohol-copolymer (EVOH) and iodinated polyvinyl alcohol polymer ether. EVOH-based agents include Onyx™ (Medtronic, USA), Squid (Balt, France) and Precipitating Hydrophobic Injectable Liquid (PHIL) (Microvention, Japan), developed primarily for use in intracranial aneurysms and vascular malformations [3]. Onyx is the most widely used and discussed in more detail. Iodinated polyvinyl alcohol polymer ether is represented by Easyx™, a novel copolymer liquid embolic agent without tantalum, allowing reduced CT artifacts on imaging follow-up [4]. Onyx™ and Squid are cohesive liquid embolic agents, composed of ethylene-vinyl alcohol (EVOH) copolymer dissolved in dimethyl sulfoxide (DMSO) with suspended micronized tantalum powder.

When the DMSO solvent diffuses away, Onyx or Squid forms a spongy elastic embolus. Onyx™ is supplied in ready-to-use vials and several formulations are available that differ in the concentration of copolymer and tantalum content. Onyx 34 (EVOH 8%) is more viscous and allows for more controlled injection in higher flow targets, whereas Onyx 18 (EVOH 6%) will travel more distally and penetrate deeper into the target lesion. Onyx 34L has a lower tantalum concentration resulting in less streak artifact on CT. Onyx is delivered through a microcatheter under fluoroscopic control. Squid has one more dilution (Squid 12) which allows deeper penetration.

Sclerosants include alcohol, polidocanol, sotradecol, bleomycin, and doxicycline which can be applied in pure form, mixed with contrast or in foam form [5]. One of the main advantages is the low cost of sclerosing agents.

Knowing the indications for use, chemical properties and clinical benefits, edges, and risks of these products are essential for a well-trained IR. This learning process will be supported in the hands-on training course featuring educational cases, interactive case-based discussions, and tips and tricks from real-life experience, allowing participants to gain the expertise IRs need in the management of liquid embolic agents.

Romaric Loffroy
François-Mitterrand Hospital
Dijon/FR

Dr. Romaric Loffroy, M.D., Ph.D., is a full Professor of Interventional Radiology and the Head of Department at François-Mitterrand University Hospital in Dijon. He specialises in embolisation techniques with particular interest in gastrointestinal bleeding and pelvic venous disorders, liver cancer, peripheral arterial, and venous disease. He has been at the forefront of the development of new embolisation techniques for gastrointestinal bleeding, reducing the failure rate as well as the necessity of reinterventions. In 2009, Dr. Loffroy's keen interest in research took him to Blatimore's Johns Hopkins Hospital as a postdoctoral research fellow.

Today, Dr. Loffroy's research focuses on improving the quality of tumor imaging and the development of new IR therapies for liver cancer, deep vein thrombosis, and arterial diseases. He is one of the main European leaders in the field of embolisation with liquid agents, with a particular interest in cyanoacrylates for both experimental settings and clinical applications. Dr. Loffroy has published numerous SCI journal papers and book chapters, edited and reviewed for many academic journals, participated in several international projects, and served as an evaluation expert for organisations such as the French Society of Radiology and the High Authority of Health (HAS). He is the Past President of the French Society of Vascular and Interventional Radiology (SFICV) and the Founder/Director of the European Liquid Embolic Course (ELEC).

References:
1. Comby PO, Guillen K, Chevallier O, Lenfant M, Pellegrinelli J, Falvo N, Midulla M, Loffroy R. Endovascular Use of Cyanoacrylate-Lipiodol Mixture for Peripheral Embolization: Properties, Techniques, Pitfalls, and Applications. J Clin Med. 2021 Sep 23;10(19):4320.
2. Loffroy R, Guillen K, Comby PO, Chevallier O. Prostate Artery Embolization for Benign Prostatic Hyperplasia: Rationale for the Use of N-Butyl Cyanoacrylate Glue as an Embolic Agent. Cardiovasc Intervent Radiol. 2022 Jun;45(6):824-825.
3. Né R, Chevallier O, Falvo N, Facy O, Berthod PE, Galland C, Gehin S, Midulla M, Loffroy R. Embolization with ethylene vinyl alcohol copolymer (Onyx®) for peripheral hemostatic and non-hemostatic applications: a feasibility and safety study. Quant Imaging Med Surg. 2018 Apr;8(3):280-290.
4. Sapoval M, Vidal V, Déan C, Del Giudice C, Tradi F, Chevallier O, Charles-Nelson A, Pellerin O, Loffroy R. Safety and Efficacy of Peripheral Embolization with EASYX Liquid Embolic Agent: A Multicenter Prospective Study. J Vasc Interv Radiol. 2021 Aug;32(8):1136-1143.
5. Nevesny F, Chevallier O, Falvo N, Guillen K, Malakhia A, Pellegrinelli J, Comby PO, Bonniaud B, Midulla M, Loffroy R. Bleomycin for Percutaneous Sclerotherapy of Venous and Lymphatic Malformations: A Retrospective Study of Safety, Efficacy and Mid-Term Outcomes in 26 Patients. J Clin Med. 2021 Mar 22;10(6):1302.
6. Tartaglia, F.M. Salvatori, G. Russo et al. Selective embolization of thyroid arteries for preresection or palliative treatment of large cervicomediastinal goiters. Surg Innov 2011; 18:70-78.

Radiation-free navigation

Constantino Peña

Don't miss it !
The future of aortic interventions
Sunday, September 11, 15:00-16:00
Auditorium 2

As a specialty, we have focused on the use of imaging to help guide our interventional radiology therapies. It is important to question whether the future will allow us to perform aortic-based procedures better with less radiation. The limitations of ionising radiation are pertinent and should be in the front of our consciousness as we question the future of all our interventions. Radiation limits not only the time but also the complexity of some of our procedures. Can we use technologies that do not depend on radiation to help plan, guide and perform our interventions?

Unfortunately, the operator dose from our aortic procedures is significant. As the complexity of our aortic procedures increases, so do procedure time and exposure. There are safeguards to limit direct exposure to our patients; however, we often do not consider the continued occupational exposure to the operator over time. If we want to continue to increase the complexity of our procedures, there need to be improved techniques to reduce radiation and procedure time.

Initial fusion technology focused on creating a static three-dimensional environment based on preprocedural CT imaging. The ability to now interact in this environment is expanding the role of fusion technology from concentrating on a few limited steps to its use throughout aortic interventions. The use of augmented and virtual reality brings this technology to the operator in ways that are easy and intuitive. Continual re-evaluation of the patient-specific data allows for the use of artificial intelligence and computer-generated algorithms to minimise the need for radiation during procedures.

Over the last decade, the use of robotics has not only increased the precision of our procedures, but may allow complex procedural steps to be performed without direct exposure to ionising radiation for the operator. What will the future hold? Can we expect robotic technology to help us perform certain procedural steps faster, more efficiently, and precisely due to robotics and automation?

The development of optical sensing technology allows us to define our wires and catheters throughout a specified space without the need for radiation. Significant work demonstrates that this technology reduces radiation exposure and procedure time, particularly in complex aortic procedures. However, can this technology serve as a framework for purely radiation-free procedures? What are the imaging constructs that may need to change in order to define the boundaries of this new imaging space?

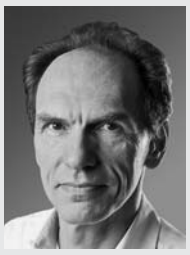
Constantino Pena
Miami Cardiac
and Vascular Institute
Miami/US

Dr. Peña is board-certified in diagnostic radiology with a certificate of added qualifications in vascular and interventional radiology at the Miami Casiac and Vascular Institute. He is a diplomate of the Board of Cardiovascular CT. He is a fellow of the Society of Interventional Radiology and the Society of Cardiovascular CT. He is an active member of the Radiological Society of North America, American College of Radiology and American Heart Association.

Don't miss it !
Acute stroke management
Sunday, September 11, 16:15-17:15
Room 120

Acute stroke management

Wim H. van Zwam



Wim H. van Zwam
Maastricht University Medical Center Maastricht/NL

Prof. Wim H van Zwam is an experienced neurointerventional radiologist at the Maastricht University Medical Center, with a PhD in radiology and an MSc in neurointerventional surgery. He was PI of the MACCA study on contrast enhanced MRA for cerebral aneurysms, co-PI of the MRCLEAN trial and is currently co-PI of the MRCLEAN_Late trial (https://www.mrclean-late.nl) and he chairs the DSMB of Philips' WETRUST study and of the InExtremis trials (LASTE and MOSTE).

He is board member of the European Board of NeuroIntervention (EBNI), fellow of the European Stroke Organization and of ESC's Council on Stroke.

He published more than 200 peer reviewed papers, mainly on ischaemic stroke, is a regular lecturer at the ECMINT and EXMINT courses as well as ESNR's Course in Interventional Neuroradiology and ESO/ESNR/ESMINT Stroke Winter School. He is reviewer and associate editor of several journals.

On January 1st, 2015, the Multicenter Randomized Clinical trial of Endovascular treatment for Acute Ischemic Stroke in the Netherlands (MRCLEAN) study was published in the New England Journal of Medicine. This was the first RCT showing a clear benefit of endovascular treatment (EVT) in patients with an acute ischaemic stroke due to a so-called large vessel occlusion (LVO) in the anterior intracranial circulation. Several other ongoing RCTs were immediately halted and published shortly after, showing similar treatment benefits of EVT. Since then, EVT for patients with an acute stroke due to an LVO of the anterior circulation has been recommended in all international guidelines. Treatment had to start within the first six hours after the onset of symptoms because overall treatment benefit disappeared after little more than six hours. Later, a few trials showed that with adequate patient selection, based on perfusion CT (CTP) or diffusion-weighted MRI (DWI), a significant treatment benefit could be achieved in patients treated even up to 24 hours after symptom onset.

More recently, some studies also showed a treatment benefit of EVT in the posterior circulation (basilar artery) LVO. However, the results of the published and presented studies are not as convincing as in the anterior circulation.

In nearly all these studies, the latest generation thrombectomy devices, the so-called stent retrievers, were used. Stent retrievers are stent-like devices, or modified regular stents, that are placed in the occluding clot and subsequently pulled out together with the clot. An alternative treatment method is aspiration, in which the occluding clot is aspirated with a relatively large bore aspiration catheter. Several studies have shown that results with this aspiration technique are just as good as with a stent retriever (and probably less expensive).

Combined techniques, combining aspiration and a stent retriever with an additional proximal balloon guide catheter (BGC) have been reported to have the best chance of a 'first pass effect' (FPE). If FPE is achieved, meaning the (near) complete opening of the vessel, reported as an eTICI score of 2C or 3, with one attempt, the patient will have a significantly better clinical outcome than when eTICI 2C/3 is achieved after multiple passes.

Further details on treatment strategies, like anaesthetic management, administration of heparin, aspirin or newer neuroprotective drugs, skipping IV alteplase treatment in patients undergoing EVT, or bypassing primary stroke centres for patients with a high likelihood of an LVO have all been tested in recent studies. In addition, new studies about treating patients with mild symptoms (low NIHSS), large infarcts (low ASPECTS) or more distal occlusions -so-called medium vessel occlusions or MeVOs- are currently ongoing, as well as studies on 'tandem occlusions' (i.e. intracranial LVO in combination with an ipsilateral cervical internal carotid artery lesion), direct to angio suite (i.e. bypassing the CT and performing flat panel CT in the angio suite) or optimal imaging protocols.

Most of the above topics will be addressed in the workshop in a case-based manner. Problems or decision moments that occur in daily clinical practice will be discussed. Alternative approaches or differences in patient management will be presented and discussed with the attendees, while questions from the attendees are welcomed and hopefully answered. Some knowledge about stroke or EVT is preferred for the discussion but not necessary. The moderators of the workshop will present the theory and cases in a clear way, comprehensible for all levels of training or experience in interventional radiology.

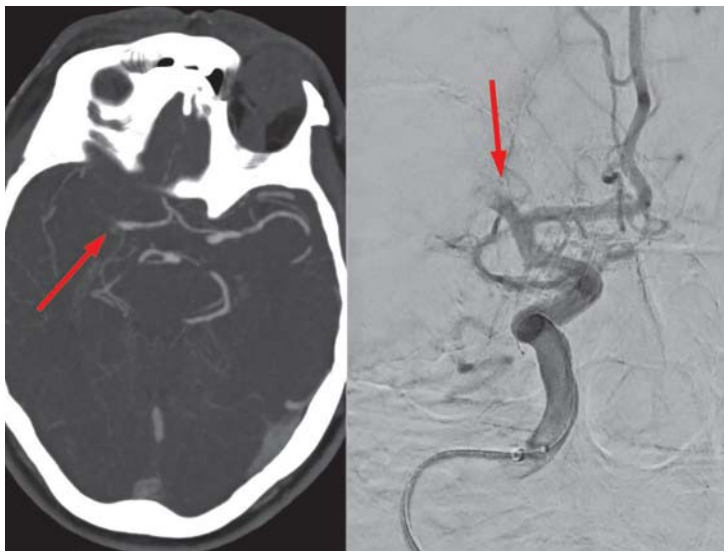


Figure 1: (a) CTA with right MCA occlusion. (b) DSA of same occlusion.

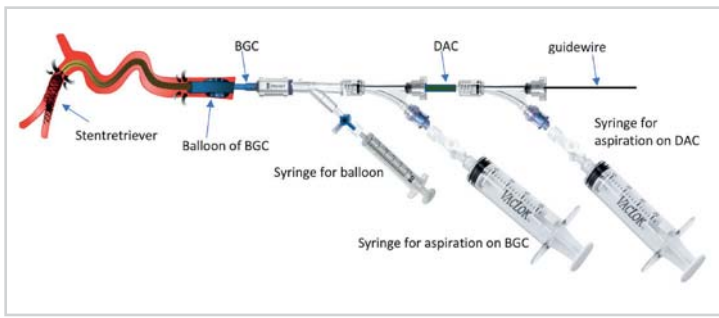


Figure 2: Combined technique with Balloon Guide Catheter (BGC), Distal Aspiration Catheter (DAC) and stent retriever.

Don't miss this session!
CIRSE meets EASL
Locoregional therapies in liver cancer – where do they fit in the bigger picture?
Saturday, September 11, 11:30-12:30
Room 113

CIRSE meets EASL

CIRSE is very happy to announce today's CIRSE meets the European Association for the Study of the Liver session in which prominent representatives from both societies will discuss the challenges and advances of liver cancer treatment.

Moderators Thomas Kröncke and Jean-Charles Nault will lead through the session which will examine how the new BCLC classification can give guidance for therapeutic sequence and stage migration, an update on the current trials in combination therapies, the place of TACE in HCC treatment, and radiation segmentectomy in curative intent.

Not to be missed!

EVT, aspiration and thrombectomy

David Sacks

Endovascular thrombectomy (EVT) for acute large vessel ischaemic stroke has progressed from prolonged intra-arterial thrombolytic infusions to mechanical devices to remove the clot. The original corkscrew like Concentric Merci device has been replaced with stentrievers (SR) and contact aspiration (CA) devices which may be used as single devices or combined [1] (Figure 1), and the devices are delivered through guide catheters or balloon guide catheters (BGC).

What works best? The standard of good clinical outcome is return to independence (modified Rankin Score [mRS] of 0-2) by 90 days, hopefully for the least cost. Surrogate endpoints used to assess device effectiveness include speed and completeness of revascularisation. For each 1% increase in near complete revascularisation (eTICI 2c/3 corresponding to > 90% revascularization), there is a net monetary benefit of $17,000. For each decrease of ten minutes in time to successful revascularization the monetary benefit is $10,600 [1]. Therefore, the best devices will give the fastest, most complete revascularisation. In general, for devices that are faster and more effective, these monetary benefits will outweigh differences in device cost.

For anterior circulation strokes, the ASTER randomised trial compared CA versus SR and found similar rates of revascularisation > 50% (mTICI > 2b 85% vs 83%) and mRS 0-2 (45% vs 50%). CA was seven minutes faster but more frequently needed rescue therapy (33% vs 24%) [2] (Figure 2). The COMPASS randomised trial of CA versus SR found nearly identical rates of revascularisation and good clinical outcome, but CA was ten minutes faster with a device cost saving of $5000 per case [3] (Figure 3). A meta-analysis of observational studies for posterior circulation strokes found that CA was superior to SR for success and completeness of revascularisation, good clinical outcomes, and mortality, and was 29 minutes faster, but the studies included in the analysis were of limited quality [4]. Real world experience from registries comparing CA and SR has confirmed similar rates of successful revascularisation and clinical outcomes [5,6].

The ASTER 2 randomised trial compared the combined use of CA and SR versus SR alone. Technical results for success and completeness of revascularisation were better for combined vs SR, with most results statistically significant, but clinical outcomes were similar [7] (Figure 4). Better revascularisation for combined versus SR vs CA were also demonstrated in the ETIS registry, but clinical outcomes were worse, perhaps due to worse collaterals in the combined group [8]. In an observational, retrospective study of ICA terminus occlusions, combined was superior to CA for success and completeness of revascularisation and good clinical outcomes with nearly identical procedure time.

Balloon guide catheters have been advocated because they provide flow arrest and possibly reversal, and may reduce clot fragmentation and distal emboli, but they may be harder and more time consuming to advance, and add expense. The benefits of BGC were confirmed in a meta-analysis that mostly used SR, with better and more complete revascularisation, better functional outcomes, and lower mortality [9] (Figure 5). The benefits of BGC are independent of whether CA or SR is used [10], even if large diameter (.070) aspiration catheters are used [11]. The benefits of BGC are larger than the effect of thrombectomy versus control in the MR CLEAN trial [12].

However, these comparisons may become obsolete as devices improve. A beveled aspiration tip has better first pass effectiveness than a flat tip [13]. Lumenal diameter of aspiration catheters have increased and new .088 lumen catheters achieve first pass eTICI > 2b of 80% and eTICI 2c/3 of 55% with a final eTICI > 2b of 96% [14].

In conclusion, results of CA and SR are very similar, except for perhaps in the posterior circulation. Combined use of CA and SR seems better than CA or SR technically, but clinical outcomes may be similar. The use of a BGC improves technical and clinical outcomes regardless of thrombectomy device used. While devices continue to improve, the best device may be the one you are most skilled using. Success and speed trump device costs.

Don't miss it !

Fundamentals in stroke management
Sunday, September 11, 08:30-09:30
Room 116

David Sacks
Tower Health, West Reading/US

Dr. David Sacks has been an interventional radiologist at Reading Hospital since 1985. He has served as chair of the Technology Assessment Committee, Councilor for the Standards Division and President of the Society of Interventional Radiology. He received a gold medal from the Society of Interventional Radiology in 2021. He has had an interest in the interventional treatment of stroke for nearly 20 years. He has authored or co-authored numerous papers on physician training and performance standards for carotid stenting and stroke interventions, and chaired an international writing group to create outcome benchmarks for intra-arterial stroke therapy. He is past president of the Intersocietal Commission for the Accreditation of Carotid Stenting Facilities and serves as immediate past chair of the board of the Intersocietal Accreditation Commission. He has served on the board of the interventional stroke registry, INSTOR. He was co-chair of the Society of Interventional Radiology CLOTS interventional stroke training course, and created a stroke training course for the Interventional Radiology Society of Australasia in July 2017. He is committed to the education of physicians, nurses, and technologists offering interventional stroke care.

Figure 1: Drawings of thrombectomy using a stentriever, contact aspiration, and combined.

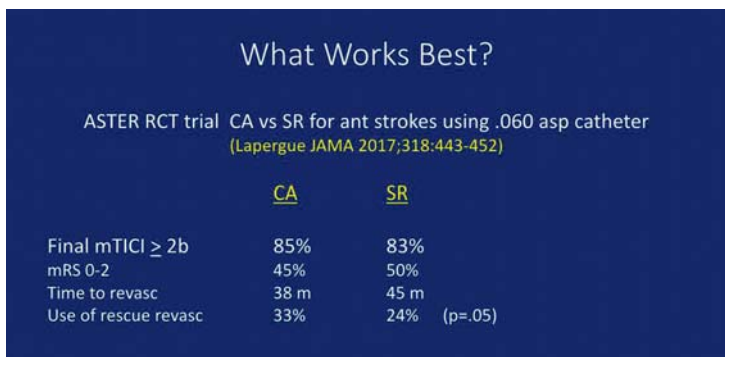


Figure 2: ASTER trial results of contact aspiration vs stentriever for anterior circulation strokes.

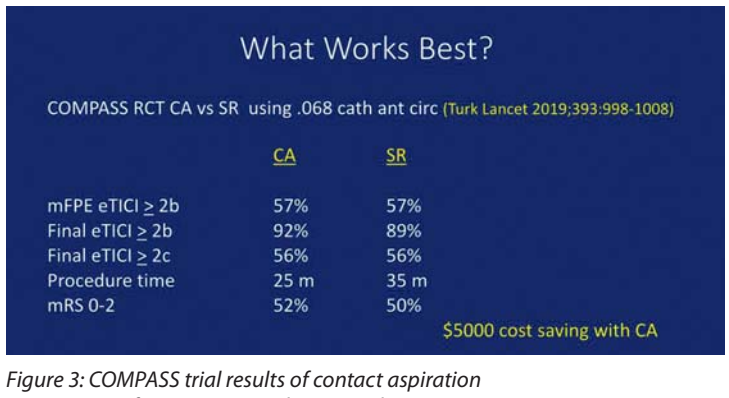


Figure 3: COMPASS trial results of contact aspiration vs stentriever for anterior circulation strokes.

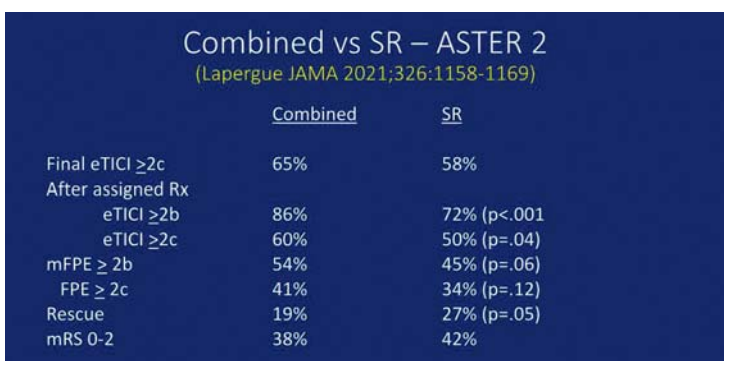


Figure 4: ASTER 2 randomised trial comparing the combined use of CA and SR vs SR alone.

Table 2 Categorical outcomes

	Number of studies	BGC	No BGC	OR (95% CI)	p Value	I^2
First-pass recanalization	3	63.1%	45.2%	2.05 (1.65 to 2.55)	<0.01	10%
TICI 3	2	57.9%	38.2%	2.13 (1.43 to 3.17)	<0.01	0%
TICI 2b/3	4	78.9%	67.0%	1.54 (1.21 to 1.97)	<0.01	67%
mRS 0–2	4	59.7%	43.8%	1.84 (1.52 to 2.22)	<0.01	0%
Mortality	3	13.7%	24.8%	0.52 (0.37 to 0.73)	<0.01	50%

BGC, balloon guide catheter; mRS, modified Rankin Scale; NIHSS, NIH Stroke Scale.

Figure 5: Meta-analysis comparing outcomes using a balloon vs a standard guide catheter (Brinjikji W, Starke RM, Murad MH, et al. J Neurointerv Surg 2018;10(4):335-339).

References:
1. Ospel JM, McTaggart R, Kashani N, et al. Semin Intervent Radiol 2020;37(2):119-131.
2. Lapergue B, Blanc R, Gory B, et al. JAMA 2017;318(5):443-452.
3. Turk AS, Siddiqui A, Fifi JT, et al. Lancet 2019;393(10175):998-1008.
4. Ye G, Wen X, Wang H, et al. J Neurointerv Surg 2022; 14(5):457-463.
5. Martini M, Mocco J, Turq A, et al. J Neurointerv Surg 2019;11(10):957-963.
6. Bernsen MLE, Gooldhorn RJB, van Oostenbrugge RJ, et al. J Neurointerv Surg 2019;11(7):631-636.
7. Lapergue B, Blanc R, Costalat V, et al. JAMA 2021; 326(12):1158-1169.
8. Maïer B, Finitsis S, Bourcier R, et al. J Neurointerv Surg 2022;14(5);neurintsurg-2021-017505.
9. Brinjikji W, Starke RM, Murad MH, et al. J Neurointerv Surg 2018;10(4):335-339.
10. Baek JH, Kim BM, Kang DH. Stroke 2019;50(6):1490-1496.
11. Blasco J, Puig J, Daunis-I-Estadella P, et al. J Neurointerv Surg 2021;13(9):773-778.
12. Berkhemer OA, Fransen PSS, Beumer D, et al. N Engl J Med 2015;372:11-20.
13. Vargas J, Blalock J, Venkatraman A, et al. J Neurointerv Surg 2021;13(9):823-826.
14. Caldwell J, McGuinness B, Lee SS, et al. J Neurointerv Surg neurintsurg-2021-018318.

YOU CAN HANDLE THE RISK

CIRSE **Radiation Protection**

YOUR RADIATION EXPOSURE – YOU CAN HANDLE THE RISK!

Interventional radiologists are exposed to high levels of radiation in daily practice and therefore face particular health risks. Join us at the Radiation Protection Pavilion and learn how to reduce and protect against exposure as well as the health hazards linked to high levels of exposure to radiation with our best-practice guides and information materials, or take a seat and listen to a brief talk hosted by our subcommittee and industry partners!

Today´s RPP radiation safety talks

	Time	Radiation Safety Talk	Speaker
SUN SEPT 11	12:30 – 12:45	Effectiveness of staff radiation protection devices for interventional procedures – results and recommendations of the MEDIRAD project	G. Paulo *(Coimbra/PT)*
	12:45 – 13:00	A huge step in dose management in clinical practice with Digital Variance Angiography	J. Kiss *(Budakeszi/HU)*
	13:00 – 13:15	Radiation protection of assistants and supporting staff	G. Paulo *(Coimbra/PT)*
	13:15 – 14:00	Round Table Blind spots of occupational dosimetry – a need for action	
MON SEPT 12	12:30 – 12:45	Wireless dosimeters	M. Rehani *(Boston/USA)*
	12:45 – 13:00	Augmented reality-based simulation training of radiation protection in Interventional Radiology	G. Bartal *(Kfar-Saba/IL)*
	13:00 – 13:15	The fear of Radiation	J. Reekers *(Amsterdam/NL)*
	13:15 – 13:30	How to prevent personnel´s musculoskeletal problems due to heavy protective aprons in long-lasting interventions and protection of extremities (no protection garment)	G. Bartal *(Kfar-Saba/IL)*
	13:30 – 13:45	Occupational exposure in SIRT	R. Loose *(Nuremberg/DE)*
TUE SEPT 13	12:30 – 12:45	Chronic low dose radiation – An inflammatory response	E. Radtke *(Lenexa/USA)*
	12:45 – 13:00	EuroSafe - Dose Management in Interventional Radiology: Results of an ESR Questionnaire in Europe	R. Loose *(Nuremberg/DE)*
	13:00 – 13:15	Challenges of personnel´s radiation protection i n hybrid ORs	G. Bartal *(Kfar-Saba/IL)*
	13:15 – 13:30	Practical aspects of RP in EVAR	E. Brountzos *(Athens/GR)*
	13:30 – 13:45	Problems with dose management systems in interventional radiology	R. Loose *(Nuremberg/DE)*

Radiation Protection Pavilion

The advancements of the last 20 years in digital imaging and minimally-invasive technology have been a key factor for the expansion of interventional treatments, but they have come at a price, as interventional procedures are delivered through high radiation doses.

Radiation exposure is a risk for both the patient and the healthcare professional and the consequences can be quite severe if the right precautions are not taken. Nowadays, there are a variety of techniques, tools, and protocols that can be used and put in place in order to drastically reduce these dangers. It is therefore essential for interventional radiologists to always be up to date on the latest technological advancements and training techniques.

CIRSE has always shown its dedication to education and practical advice on these important issues. Over the years, the society has been a part of various initiatives and has continued to update its portfolio both online and during congresses.

This year, the Radiation Protection Subcommittee celebrates its 10th anniversary. The members of the subcommittee are a group of internationally renowned experts in the field. They represent CIRSE in the EuroSafe Imaging campaign and other relevant European Commission tenders. Recently, the subcommittee has worked on a series of webinars together with the International Atomic Energy Agency (IAEA) and the International Organisation for Medical Physics (IOMP) to train medical professionals regarding radiation protection.

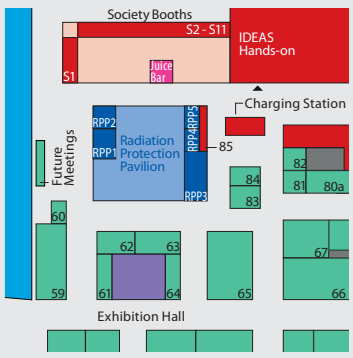
The Radiation Protection Pavilion

The most important activity organised by the Radiation Protection Subcommittee is the Radiation Protection Pavilion at the CIRSE Annual Congress. Since its first edition in 2014, the RPP continues to bring together medical specialists and industry partners to inform and educate the IR community on the latest scientific and technical developments in the field of radiation protection and dose management.

Under the slogan "Your radiation exposure – you can handle the risk!", the 2022 RPP will cover a wide range of scientific radiation safety topics and will take an in-depth look at the world of personal and occupational dosimetry. It will also provide important insights into the EURAMED rock-n-roll project. This year's programme includes 20 interesting radiation safety talks and a round table on the topic "Blind spots of occupational dosimetry – a need for action".

Attendees will also have the chance to discuss and explore the latest products for protection and dose management with industry partners who will share their experiences on the potential application of validated tools and discuss how behaviour within the interventional lab can impact dosage and monitoring. Industry partners will lead various radiation safety talks and be present each day of the congress to discuss the various tools available and answer any questions from attendees.

The 2022 Radiation Protection Pavilion is proudly supported by:



IASIOS – Hospital accreditation for top IO care

INTERNATIONAL ACCREDITATION SYSTEM FOR INTERVENTIONAL ONCOLOGY SERVICES

Interventional oncology (IO) has been recognised as the fourth pillar in modern cancer care, offering significant benefits to the patient through minimally-invasive potential curative and palliative cancer treatments. Although IO is a promising young discipline, there is a lack of awareness of IO therapies among the general public and other medical specialists, which has represented a barrier to the field and its development.

What is IASIOS?

The International Accreditation System for Interventional Oncology Services (IASIOS), the first of its kind in the world, is an accreditation system that was established to encourage the adoption of quality standards for IO on a global scale, accelerate the development of the field, and increase the awareness of IO treatments and the facilities that offer them.

IASIOS accreditation provides facilities with essential quality standards critical for patient safety and satisfaction. Achieving the IASIOS certification enables IOs to prove their value and expertise as primary clinical care providers to their patients, referring oncologists and hospital administrators. IASIOS Accredited Centres have demonstrated their commitment to providing the highest quality standards of patient care.

IASIOS is not only an accreditation system, it is also a membership programme of which a supportive and connected network of dedicated IOs is a fundamental aspect. Building a worldwide community and network of like-minded IOs supporting, mentoring and learning from each other is key to the growth of the discipline and will accelerate the adoption of the relevant techniques in IR departments around the world, which, in turn, would allow many more cancer patients to be treated. Apart from certifying their facility, IASIOS members will have the opportunity to benefit from networking events, seminars, training sessions, surveys and benchmarking services.

The CIRSE Standards of Quality Assurance in Interventional Oncology

The CIRSE Standards of Quality Assurance in Interventional Oncology establish the highest standards for patient care and treatment, as well as the safety and efficiency of interventional procedures involved in the management of cancer patients. They look at the whole process of patient care and treatment and what is required to deliver it safely and effectively. The document has received widespread global support from over 30 national societies, including the European Cancer Organisation (ECO).

The document outlines in three sections the evidence required from organisations to be compliant and eligible for accreditation: 'Staff and Facilities', 'Treatment, Planning and Delivery', and 'Safety and Quality'. The Standards provide a framework for the gold standard of IO services, which is something we hope that all facilities will strive to achieve over the coming years as IO becomes a firmly established clinical service. At the end of each standard is a list of evidence to demonstrate compliance.

The Accreditation Process

Any facility that wishes to obtain formal recognition of its IO service line can apply for IASIOS, either as part of an existing institution or as an independent entity. IASIOS does not put restrictions on medical facilities regarding their size or location.

The accreditation process begins once a facility has registered. By initiating the process, they receive the first seal—that of an IASIOS Enrolled Centre. With the first step, they have shown that they are dedicated to increasing the quality of the patient pathway in their IO service line. The objective of IASIOS is not to assess a department's quality at the time of enrolment, rather it is to work together with the centre while they make any necessary modifications and changes to bring their IO service line to the level outlined in the core requirements of the Standards of Quality Assurance document. The centre can remain an Enrolled Centre for as long as necessary to make the changes.

Centres can utilise the full support of the IASIOS team along the way for any questions that may arise or obstacles that may be encountered during the application process, whether by email or video call. They have developed many helpful resources and a manual based on the continuous feedback and support from the IASIOS community, so newly enrolled centres can learn from those that have gone through the process before them. These include translations into multiple languages.

When the application is complete, it is independently reviewed by two assessors who must both come to the same agreement that compliance with the 28 core criteria has been demonstrated before the seal of IASIOS Accredited Centre has been granted. If there is any doubt about the answers given in the application form, the facility will be able to provide additional documentation, or the assessors may request a remote audit for a detailed discussion.

After a centre has been an IASIOS Accredited Centre for four years, they have the option of becoming recertified, or they can ambitiously aim to demonstrate compliance to every standard outlined in the Standards of Quality Assurance document, which would grant them the IASIOS Centre of Excellence seal.

IASIOS Community and Centres

Efficient running of the system is ensured by the IASIOS Steering Board, chaired by Prof. Andreas Adam and includes members Prof. Afshin Gangi and Prof. Lizbeth Kenny. It is managed by the IASIOS Committee, chaired by Prof. Jean Palussiere, deputy chairman Dr Miltos Krokidis, Prof. Laura Crocetti and Prof. Dimitrios Filippiadis. In addition to the Committee, the IASIOS Council members, coming from the world's top interventional oncology hospitals in Asia, Australia, Europe, North America and South America assess a facility's suitability for accreditation.

After a pilot phase which included 12 pioneering facilities from 8 countries around the world, IASIOS was launched publicly in April 2021. In less than 1 ½ years, the community has almost tripled in size, including incoming centres, with ten centres already achieving the IASIOS Accredited Centre seal. These include hospitals in 13 different countries in Europe, Australia and Asia.

IASIOS has received widespread global support from over 20 national and international radiology societies and media coverage.

The three IASIOS seals

IASIOS Enrolled Centre
Awarded when a facility registers with the IASIOS. It represents the facility's dedication to providing high-quality IO care and indicates that they are in the process of seeking IASIOS accreditation. The seal is held until the facility can fulfil all requirements.

IASIOS Accredited Centre
The Accredited Centre seal is a testament to the high standard of IO care a facility provides, per the CIRSE Standards of Quality Assurance in Interventional Oncology. This seal is awarded if a facility complies with the core requirements listed on the IASIOS application form.

IASIOS Centre of Excellence
The Centre of Excellence seal represents the highest level of accreditation offered by IASIOS. It can only be awarded if a facility complies with all the core and extended requirements listed on the application form and has been an IASIOS Accredited Centre for a minimum of four years.

AMA Sessions (Ask Me Anything) in multiple languages at CIRSE 2022

These informal sessions will be hosted by IASIOS Community members throughout the congress. Please check the IASIOS social media channels for the most up-to-date information! Sessions will be available in **English, Greek, Turkish, Italian, French, German,** and an introductory session in **Spanish**!

Need more information?

Stop by the IASIOS booth to see how getting accredited can benefit your practice, your patients, and your service line.

Contact the IASIOS team at office@iasios.org to set up a personal consultation on how you can get started.

Visit their website at www.iasios.org, where they have a step-by-step guide.

Follow us on our social media channels! IASIOS is on LinkedIn and @ the_IASIOS on Facebook and Twitter.

Prof. Bien-Soo Tan, Prof. Kiang Hiong Tay, and team

Singapore General Hospital
Singapore

"The Interventional Radiology Center at Singapore General Hospital (SGH) is deeply honoured to receive IASIOS accreditation, which distinguishes our Interventional Oncology (IO) Services to be among the best in the world. This is a significant milestone for SGH and has further enhanced SGH's strong reputation of providing high-quality clinical care. IASIOS accreditation is a strong endorsement and recognition that our IO services is of high quality and meet rigorous international standards. This will be very reassuring to both our patients and referring clinicians. Going through the IASIOS certification process has been an humbling experience and has inspired us to further strengthened our processes to provide safe and efficacious care that is of high value and quality, not just for IO but also all other IR services."

Gregor Gelbricht, Lisa Reese, Christian Mayer, Ernst Hohenstein, Sina Speck, Tomislav Stavrovski, Gabriele Löchner, Gunther Lemm, Philippe Pereira

SLK Kliniken
Heilbronn, Germany

"We at SLK-Kliniken in Heilbronn, Germany are proud to be the first center in Germany to be certified by IASIOS. The certification process took some effort but the IASIOS team never hesitated to help us with any questions or problems we had. During the certification process we were able to further improve our already well-established IO workflows and make sure they are in line with the most recent national and international standards. With the help of IASIOS we are now able to coordinate and monitor our IO services even better to make sure every patient receives the best possible treatment and reaches the best individual clinical outcome."

Prof. Christoph Binkert and team

Kantonsspital Winterthur
Winterthur, Switzerland

"IASIOS has assisted our facility in adhering to the golden standards of patient care and provision. As the first internationally accredited IO facility in Switzerland, Kantonsspital Winterthur is at the forefront of this evolving discipline"

Dr. Mark Burgmans and team

Leiden University Medical Centre
Leiden, the Netherlands

"It is with great honour that we have received the IASIOS accreditation. The IASIOS team has been tremendously helpful in guiding us through the process. It has been a great learning process as the accreditation process gave us insight in those things that are well organized in our centre as well as the areas that need improvement. The IASIOS helps centres to go from good to excellent!"

Dr. Nicholas Brown and team

I-MED Radiology, The Wesley Hospital
Brisbane, Australia

"The Wesley Hospital is proud to have been the first centre in the Southern Hemisphere to achieve IASIOS accreditation. Thousands of interventional oncology procedures, both minor and major, are performed by the team at The Wesley Hospital each year. The IASIOS brand affirms the high quality service that the team provide to both patients and referrers, and we look forward to continuing to find new ways to promote the highest standards of patient care"

Dr. Roberto Cioni, Dr. Federica Del Cima, Dr. Laura Crocetti and team

University Hospital Pisa
Pisa, Italy

"We at Azienda Ospedaliero Universitaria Pisana, University of Pisa, are extremely honoured and proud to be the first centre in Italy accredited for the Interventional Oncology service. We strongly believe in quality in patient care and pursuing the accreditation was of help in identifying where we had to improve and what we had already succeeded in. We found an incredible support in the hospital administration and in all the departments we work with for the treatment of oncology patients. Collaboration is really the basis for reaching this important goal. We are now aware our IO service is of high quality and meets rigorous international standards, and we are trying to understand where and how we can further improve. Quality for patient care is never enough."

Prof. Afshin Gangi, Cathy Kuber, Bernard Kopp, Dr. Julien Garnon, Dr. Julia Weiss, Dr. Roberto Cazzato, Dr. Jean Caudrelier, Celine Henninger

Strasbourg University Hospitals, HUS
Strasbourg, France

"We at the University Hospital of Strasbourg are thrilled to be the first centre in France to be awarded this internationally renowned quality assurance seal in interventional oncology, as well as being the second centre in the world to be certified! In the IR department, we are all highly committed to providing each patient with a high-standard clinical service. With IASIOS's focus on traceability, the Strasbourg team has increased the monitoring of several different clinical practices with the intent of improving the quality and safety of the provided clinical services. Our team is very proud of this recognition, which rewards many years of hard work spent monitoring the quality of their clinical services."

Ozgur Celik, Murat Dokdok & Oktay Karadeniz

Anadolu Medical Center
Gebze, Kocaeli, Turkey

"We at Anadolu Medical Center are proud and delighted to be awarded the seal of IASIOS in interventional oncology in return for our efforts. The process has improved our services in IO and has led us to build sustainable best-medicine practice in this field with the great help of IASIOS office. Thanks to IASIOS, we could move one step further while aiming for higher standards. Now, we all feel motivated to improve quality and safety standards in interventional oncology at Anadolu Medical Center, as one of the first accredited facilities in the world."

S Enfedaque F Boyer (Quality control department), F Gouze, F Lagurgue, X Buy, V Catena, J Palussière (IR department)

Institute Bergonié
Bordeaux, France

"We at the Institute Bergonié are very happy and proud to have been accredited by IASIOS and also to be among the first IO facilities accredited, that is an acknowledgement of a constant work and effort of the facility in collaboration with the quality department of our institution. The application has allowed us to improve the quality of our daily care and we are very enthusiastic to prepare the second step with the hope to become a centre of excellence within the next years. Thank you to IASIOS to promote IO through a standardisation of our practice."

Shahzad Ilyas, Nicole Silva & Alison Pollard

Guy's and St Thomas's Hospital, NHS Trust
London, United Kingdom

"We at Guy's and St. Thomas's are delighted to be among the first IO facilities to apply for this important and worthwhile accreditation! Completing the IASIOS application process was a challenging experience but the IASIOS office was on hand to support our team and clarify any questions that arose. Ultimately, applying for IASIOS has led to the advancement of our IO facility by helping us analyse our service line and determine how to improve our delivery of high-quality IO care in accordance with the Standards of Quality Assurance document."

Fun Catalan traditions

Petra Mann
CIRSE Communications Department

The Catalans are a proud people with a very distinct culture that they hold dear to their hearts. Here is a guide to some of the Catalans' most outstanding, tantalising, and sometimes hilarious traditions.

Building human pyramids – not just for cheerleaders

No Catalan celebration would be complete without a *castell,* literally "castle", consisting of various layers of people standing on top of each other, forming a human pyramid. Based on an older Valencian tradition, castells were embraced by the Catalans in the 18th century. From the 1980s onwards, women were included in the formerly male-only discipline. Probably because they had dropped a few too many heavy-set men and figured lighter teammates would be a good idea. Needless to say that this much improved the outcomes, leading to higher catells of up to 10 levels.

To start building a castell, a *pinya* is formed – a large group of people forming tight concentric circles around the base of the tower to distribute its weight and keep it from collapsing, a claustrophobia-inducing set-up only paralleled by Black Friday shopping scenes. The lucky fellows forming the pinya will also provide the cushioning for falling teammates should the pyramid collapse. The bottom of the castell is then formed by heavy-set gentlemen followed by several storeys of lighter men or women. The top of the pyramid is usually a child of what I assume are not helicopter parents.

Castells have been called the great equaliser, because at what other time of the year would you get the chance to step on your boss?

Today, there are between 60 and 70 *colles castelleres* – castell teams – in Catalonia, and in 2010, castells were included in the UNESCO's list of intangible cultural heritage.

Sant Jordi – Dragon slayer and patron saint

According to legend, Saint George slayed a dragon who had been demanding human sacrifice (never mind that he only stepped in once the dragon demanded a princess). Since the 13th century, he has been adopted by numerous countries and cities as their patron saint, including England, Bulgaria, and Russia. However, no region seems to have to embraced him quite as fervently as the Catalans, who made him their patron saint in 1456 and seem to have named 90% of their male descendants Jordi – the Catalan version of George – since then.

Every April 23, Catalans celebrate Sant Jordi by gifting books and roses to each other. How the gory tale of human sacrifice and dragon-slaying in the third century has been turned into a festival of love and culture is beyond me, but shows a hippy spirit that is quite endearing. The *Diada de Sant Jordi* has been especially important since the Renaixença (literally "Renaissance") in the 19th century, a period of strong economic and cultural growth in Catalonia which in turn lead to Catalans' renewed pride in their distinct culture. The Diada de Sant Jordi is now the most celebrated civic, cultural, and patriotic day in Catalonia.

The caganer

A tradition showing that Catalans have a great sense of humour, and maybe a somewhat relaxed relationship with the church, is the caganer (literally "the pooper"), a figurine of – well you guess it – a man answering nature's call. Where do Catalonians put this little figurine; you ask? Why, in their nativity scenes of course! Yes, you read that right. At Christmas, no Catalan manger would be complete without little pooper hiding somewhere, lending the scene a somewhat grounded, more realistic aspect. Needless to say, children have made it their mission to seek out el caganer in every nativity and take great pride in finding him. To make things perfectly Catalan, the caganer typically wears a barretina, the traditional red hat worn by Catalonian men. Because you wouldn't want another region to claim him.

Correfoc – Setting free your inner daemon

Literally meaning "fire-run", a correfoc consists of people dressing up as devils and other monsters to chase through the streets armed with pitchforks and setting off fireworks amidst the onlooking crowd with a total disregard for every public safety measure ever created. The correfoc evolved from a medieval practice known as *Ball de Diables* and today can take place at almost any date of celebration in Catalonia, representing the fight of good vs. evil. Spectators will run along with the mad display in what seems to be a certain indecisiveness in picking sides.

A crowd joining a correfoc's pyrotechnical display – because having eyebrows is overrated.

Interview with outgoing SOP Chairperson Prof. Laura Crocetti

Laura Crocetti
SOP Committee Chairperson

Can you tell us about the documents the SOP Committee has produced over the past three years?

Crocetti: Thanks to the tireless work of all members of the committee, we were able to complete and publish 13 documents. Four documents are in production and will be published soon and another five have already been assigned to the writing groups that have started with the preliminary work. The topics covered in the documents were very varied, ranging from interventional oncology to vascular interventional radiology, updating outdated documents or dealing with topics never addressed. In particular, for the first time, a document was produced on the conduct of morbidity and mortality meetings in the interventional radiology field, which was also the first document produced by the current committee. This was followed by the document on BTK revascularisation.

In the interventional oncology field, the documents concerning chemoembolisation of liver tumours and ablation of bone neoplasms have been updated, once again carefully treating all the technical and procedural details that are the basis for the execution of a safe and effective procedure. During my mandate, some documents planned by the previous committee were finalised, namely those on percutaneous placement of biliary drains or stents, embolisation of bronchial arteries and management of anticoagulants. The documents on arterial vascular access, embolisation of varicocele, and on the placement of stentings of the upper gastrointestinal tract are about to be published.

New SOP documents on TIPS, visceral and renal aneurisms, management of endoleaks, nephrostomy and ureteric stenting, carotid stenting, and IVC filters are currently at the beginning of the production process.

What do you consider the committee's biggest achievements?

Crocetti: The documents produced all follow a standard template. They are not aimed at providing clinical guidelines, but are focused on procedural aspects, such as the preparation of the patient, the execution of the procedure with a detailed description of all the available materials, and the follow-up after the procedure itself. The members of the committee all worked hard respecting the deadlines. It was a real pleasure for me to coordinate the work of such big, international team considering that every member of the committee was in turn coordinating a writing group including four to five other people from many European countries!

Another very particular achievement was how many CIRSE members volunteered to collaborate with the committee by preparing documents. This clearly shows that SOP documents are needed by the IR community and that IRs feel part of the CIRSE educational system.

My thanks thus go to all the members of the committee and to all the coordinators of the writing groups!

How did the COVID pandemic influence on the creation of SOP documents?

Crocetti: The mandate was prolonged, which meant we had one year more to work on the documents. There have been months when our clinical work was really slowed down by the pandemic. Therefore, I can say that COVID "helped" a little... in fact all the committee members, despite having completed their task of producing one document, asked to take on another one!

In what way did the SOP Committee cooperate with other societies in the creation of guidelines?

Crocetti: During our mandate, the joint document "European Thyroid Association and CIRSE 2021 Clinical Practice Guideline for the Use of Minimally Invasive Treatments in Malignant Thyroid Lesions" was created. This represents a great achievement, as it was the first time that CIRSE took part in a multidisciplinary panel on malignant thyroid tumours , represented by Dr. Giovanni Mauri. It represents an important recognition of the role that IR can play in the field. CIRSE has also endorsed several quality care guidelines on cancer care.

We will strive to continually increase our active participation in multi-society documents dealing with oncologic and vascular diseases and the committee invites all CIRSE members involved in multidisciplinary panels to get in touch in order to enhance this process.

Where do you hope the development of CIRSE SOPs will go in the future? Are there any specific documents you would like to see produced?

Crocetti: There is still a lot to do, many procedures have to be standardised. Too often the work of IRs is left to their own discretion. Although it is true that the unforeseen may always happen and IRs must be sometimes get creative, the background for safe and effective procedures is standardisation.

CIRSE Standards of Practice Committee and writing group coordinators 2019-2022

Laura Crocetti
Chairperson

Joo-Young Chun
Elika Kashef
Pierleone Lucatelli
Anthony Ryan
Stavros Spiliopoulos

Raman Uberoi
Ex-Officio, Former Chairperson
Joachim Kettenbach
Working group coordinator
Marco Das
Working group coordinator
Anna Maria Ierardi
Working group coordinator
Tarun Sabharwal
Working group coordinator
Michelle Rossi
Working group coordinator

How to establish and how to run an outpatient clinic

Roberto Luigi Cazzato

Since its origins in the 1960s, interventional radiology (IR) has developed continually, with a growing number and variety of percutaneous image-guided procedures performed in the vascular and extra-vascular fields. Nevertheless, interventionalists have traditionally suffered from limited exposure to patients both before and after the IR treatment. To overcome such a huge limitation for a subspecialty clearly pretending to have a "clinical soul," interventionalists have started to run IR clinics with overnight patient admissions and IR outpatient clinics (IROC) to counsel patients. The privilege of running an IR ward is unfortunately still limited to very few IR centers; this probably happens due to the substantial needs an IR ward requires. On the other hand, running an IROC is far more practical and financially sustainable compared to a ward, and this may somehow explain the rapid flourishing of IROCs in the last few years. In fact, an IROC needs no more than secretarial services and access to an outpatient office.

To understand how an IROC works and understand the main factors impacting its success, a retrospective analysis of the IROC facility at the University Hospital of Strasbourg (France) was recently performed. The first surprising result was that the total number of consultations steadily increased from the first to the last year of the study period (from 693 consultations performed in 2011 to 1595 consultations performed in 2019, which accounts for an increased rate of 130%). The rate of unattended consultations remained stable throughout the entire study period (around 7%). Interestingly, for the 2018-2019 period, the cumulative procedure conversion rate, namely the rate of first consultations subsequently resulting in an IR procedure, was higher than 85%. In the end, a pool of 159 patients was surveyed to evaluate their satisfaction with the IROC; 99.2% of responders highly appreciated their IROC experience. When asked what the main aspects they took into account to evaluate their IROC experience, the quality of secretarial and medical services came out as the two main factors.

Overall, these results point out that:

- Once the IROC is started, the tendency is for a rapid growth of consultations and interventions being performed, which means that an increased workload is expected for the entire IR department; this should be anticipated and supported by local administrations;
- interventionalists are clearly succeeding in establishing the clinical character of IR, as witnessed by the high procedure conversion rate;
- with patients mainly paying attention to the quality of secretarial and medical services received in the IROC, it seems adapted to set up dedicated training allowing these professional figures to acquire all the soft skills required for a beneficial relationship with patients.

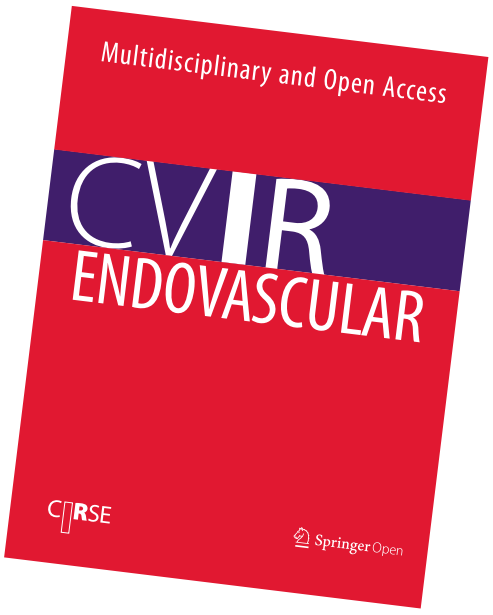
In conclusion, IROC definitively represents another success story within the recent bright history of IR, since it significantly contributes to affirming the clinical role of interventionalists. Nevertheless, running an IROC needs supportive local administrations, given the expected increased workload for the IR department. Moreover, dedicated training for the interventionalists and secretaries should be set up to maximize the development of all the soft skills required to establish a beneficial relationship with patients.

Don't miss it !
IR going clinical
Sunday, September 11, 10:00-11:00
Room 114

Roberto Luigi Cazzato
University Hospital Strasbourg Strasbourg/FR

Dr. Roberto Luigi Cazzato completed his IR training at the University Hospital of Strasbourg in Strasbourg, France, where he now serves as an associate professor of radiology and interventional radiology. An author of numerous peer-reviewed papers, his main area of clinical interest is extra-vascular interventional oncology. A CIRSE Fellow and active member, Dr. Cazzato has spoken during several European School of Radiology courses, helped author multiple Academy courses, spoken at many CIRSE meetings and currently the Chairperson of CIRSE's European Trainee Forum.

CVIR Endovascular Awards 2022



Yesterday was the CVIR and CVIR Endovascular Awards Ceremony and Reception. Each year, both journals recognise the hard work and contributions and honour authors and reviewers for stellar performance.

CVIR Endovascular acknowledged authors for their articles from the 2021 with the awards for the best social media performance and most downloads. Reviewers who have supported the journal with many high-quality reviews were also commended for their work.

CVIR Endovascular Award Winners

Most Downloaded Paper

Renovascular hypertension in children
Premal Amrishkumar Patel & Anne Marie Cahill

Read the article

Which was downloaded 4,295 times by July 2022.

Article with the Best Media Performance

"Pigtail through snare" technique: an easy and fast way to retrieve a catheter fragment with inaccessible ends
Kensaku Mori, Chika Somagawa, Shun Kagaya, Masafumi Sakai, Satoshi Homma & Takahito Nakajima

Read the article

Which received an Altmetric score of 103 by July 2022.

Most Outstanding Reviewers
(for completing six reviews each)

Vincent Helyar
Hampshire Hospitals Foundation Trust, UK

Most Outstanding Reviewers
(for completing six reviews each)

Stavros Spiliopoulos
"ATTIKON" University General Hospital, Greece

Runners-up for Outstanding Reviewer
(for completing five reviews each)

Raymond Chung
Khoo Teck Puat Hospital, Singapore

Rengarajan Rajagopal
All India Institute of Medical Sciences Jodhpur, India

Francesco Giurazza
Cardarelli Hospital, Italy

Lakshmi Ratnam
St George's University *Hospitals NHS Foundation Trust, UK*

Alexander Nath
Queen Elizabeth University Hospital, UK

Jose Urbano
Ramón y Cajal University Hospital, Spain

Congratulations to the award winners!

15% discount on the APC for CIRSE Members
CIRSE members can benefit from a 15% discount on the article processing charge (APC) for submissions to CVIR Endovascular. Contact the Editorial Office at info@cvirendovascular.org to get the discount!

CVIR Editors' Medal 2022

Congratulations to Prof. Mark W. Little and co-authors for winning the CVIR Editors' Medal 2022 for their article *Genicular artEry embolizatioN in patiEnts with oSteoarthrItiS of the Knee (GENESIS) Using Permanent Microspheres: Interim Analysis*.

Providing a planned interim analysis of GENESIS; a prospective pilot study investigating the role of genicular artery embolization (GAE) in patients with mild-to-moderate osteoarthritis of the knee using permanent microspheres, the authors of the paper conclude that GAE using permanent microspheres in patients with mild-to-moderate knee OA is safe, with potential efficacy at early follow-up.

We caught up with Prof. Little to find out more about GENESIS.

What was your motivation behind the GENESIS study?

Little: My passion is embolisation. I have always wanted to generate data for new techniques, having been involved in the early UK PAE trials. I first became aware of MSK embolotherapy in 2016 following Okuno's CVIR paper "Transcatheter arterial embolization as a treatment for medial knee pain in patients with mild to moderate osteoarthritis". I was amazed at the potential of MSK embolotherapy with the vast number of patients troubled by knee osteoarthritis (OA). I therefore decided to write my own study investigating the safety, feasibility, and effectiveness of Genicular Artery Embolisation (GAE) in patients with knee OA, and GENESIS was born!

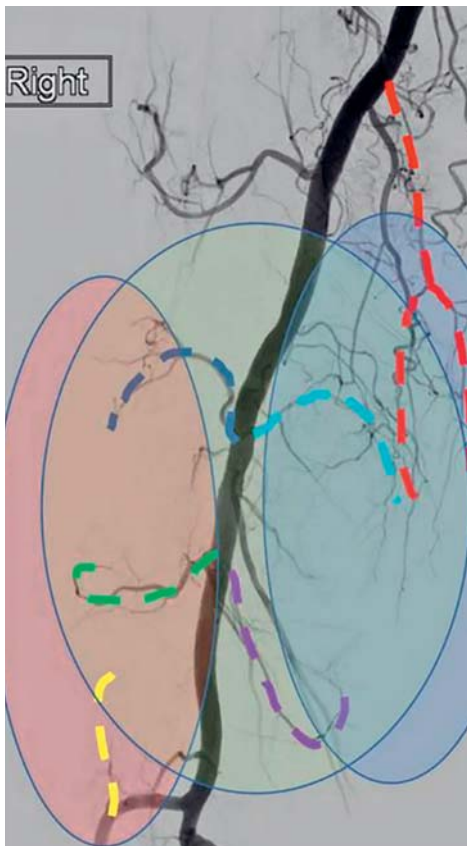
Why did you decide to submit the interim analysis to CVIR? What was the experience like?

Little: I have read CVIR since I was a registrar. It's a great journal and I have learnt lots from it over the years – it has certainly made me a better IR! The impact factor is increasing year on year, and I knew that publishing GENESIS in CVIR would enable the work to reach a wide audience. The response has been fantastic, and I hope it has inspired other IRs to start their own trails into GAE to improve data generalisability. My experience of publishing in CVIR has always been positive. The submission platform is user-friendly, and reviews are of a high quality and received in a timely manner.

Your paper received the 2022 CVIR Editors' Medal – what do you think made it stand out from the rest?

Little: I am delighted to have received such a prestigious award, but one person does not make a successful trial. I have a wonderful research team in Reading, so this is very much a team award. MSK embolotherapy is gaining momentum, with more and more trials commencing, and more data being published. I am biased, but I believe MSK embolotherapy is the most exciting new area in IR, and the potential is huge. Based on this award, I think other IRs are as excited about it as I am!

Read the award-winning article free of charge here!



Solve the CVIR crossword and win awesome prizes!

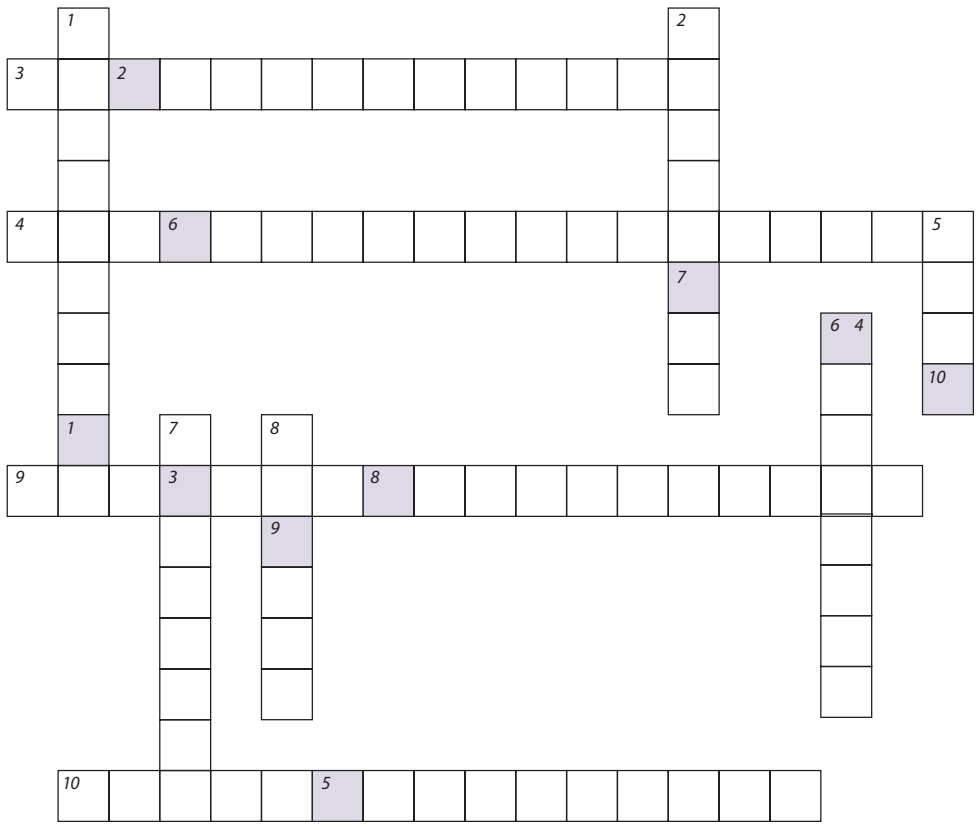
Participate in the CVIR Crossword Contest for a chance to win a ticket for the CIRSE 2022 Farewell Party and Springer vouchers!

All you have to do is solve the puzzle below and send the 10-letter solution to info@cvironline.org by the end of Sept. 12.

To find an online version of this crossword puzzle, go to the CVIR social media channels (Facebook, Twitter or LinkedIn) or the CVIR website www.cvironline.org or simply scan this QR code!

Everything you need to know to answer the questions is on the CVIR website and the 10-letter solution is related to the article that won the Editors' Medal 2022.
Scan here to read the winning article free of charge!

The winners will be announced on Tuesday, Sept. 13!
For more information about this contest and all other CVIR activities at CIRSE 2022, go to www. cvironline.org or simply scan this code!



Across

3. CVIR Editor-in-Chief.
4. Special section issued in 2021, curated by Werner Jaschke.
9. Kornelia Kreiser is the CVIR Section Editor of ?
10. Julien Garnon is the CVIR Section Editor of ?

Down

1. CVIR is the ? of IR.
2. Dr. (last name?) is the CVIR Non-Vascular Section Editor.
5. Number of CVIR Regional Editors.
6. He is awarded for carrying out 19 reviews in 2021.
7. Dr. (last name?) is giving article tips on CVIR social media every month.
8. Dr. (last name?) curated the latest CVIR special section, dedicated to TIPS.

Solution:

1	2	3	4	5	6	7	8	9	10

Don't miss it!
Mentoring Breakfast
Sunday, September 11, 08:30-09:30
Foyer Diagonal

STUDENT CORNER

The ETF in the spotlight: Rok Dezman
Welcome to the Students Programme!

Dear students,

I would like to welcome you and congratulate you for joining the CIRSE 2022 annual meeting. Interventional radiology is a dynamic and rapidly evolving speciality that is involved in multiple areas in medicine. At CIRSE European Trainee Forum (ETF) we consider introducing interventional radiology to medical students and young physicians as an important part of our mission. The ETF is a community of IR trainees affiliated to CIRSE. It is a platform for cooperation and a forum for further advancement of IR. Our aim is to enable access to the IR education to medical students and IR trainees and to enhance their participation in scientific and educational activities. We create a space within CIRSE and offer networking opportunities by organizing events and activities at CIRSE congresses and beyond.

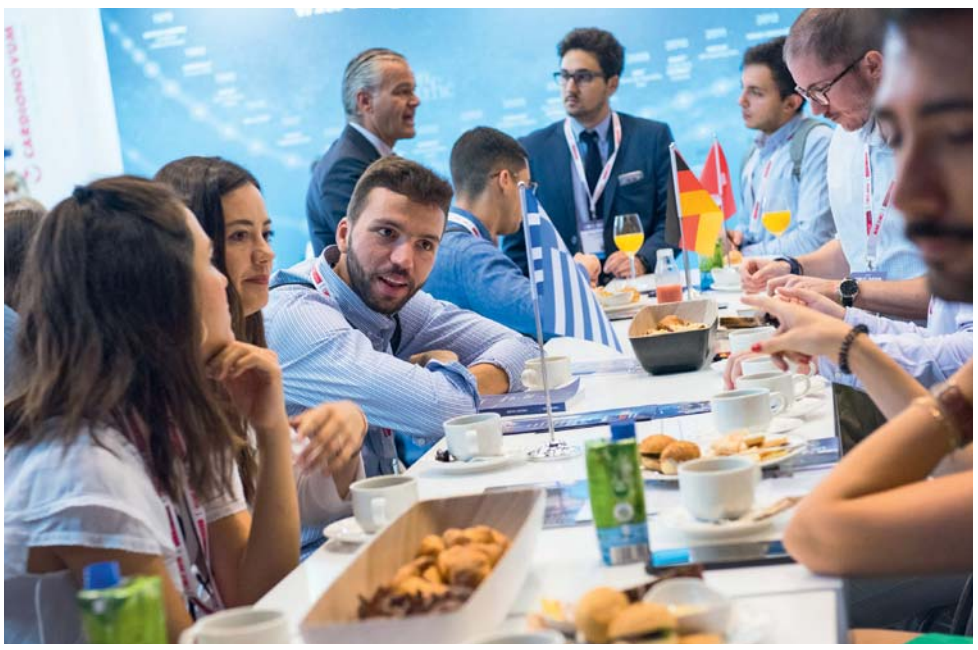
Majority of our activities and educational material is available free of charge on the Trainees section on the CIRSE website. Additionally, by becoming a CIRSE junior member or CIRSE student member, you can fully access educational materials in the CIRSE library and receive a reduced registration fee for all CIRSE congresses.

Currently, the ETF Subcommittee has 46 members, coming from 29 European countries. This gives us an in-depth insight into the IR training process in different European countries and offers vast networking opportunities. With the IR field rapidly growing we are always looking for new members.

If you are an inspired medical student or IR in training and if you want to join our team, check our website or contact us via email at:

ETF@cirse.org

Mentoring Breakfast and the Student Evening 2019



DAILY APP QUIZ

Don't forget to answer the daily students quiz in the CIRSE app!

The first participant answering all questions correctly wins a ticket for the CIRSE Farewell Party!

Recommended sessions of the day

Management of portal vein occlusion
10:00-11:00, Room 117

CVIR Endovascular: Early Career Researchers Colloquium – Reviewing Academic Papers
15:00-15:30, Room 121

Essentials of EVAR planning
(Workshop)
16:15-17:15, Auditorium 2

Hands-on device and simulation training sessions of the day

TIS-EMEA/Terumo: Tools to perform a good access for peripheral intervention
11:00-12:00, TIS-EMEA Learning Centre

Cordis: "Femoral closure: what do I need to know?"
15:00-15:30, Cordis Learning Centre

Embolisation: materials and tools – liquid agents
16:15-17:15, Room 134

Acute peripheral ischaemia
17:00-18:00, Simulator Gallery

Tumor ablation – RFA
17:30-18:30, Room 111

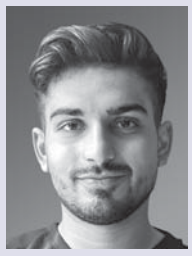
ETF Short Talks

ETF Short Talk: Young women in IR
15:00-16:00, News on Stage area

RPP Crossword Answers (p.11)
Across: 4. annual, 6. gloves, 8. decreases, 9. skin
Down: 1. horizontal, 2. index, 3. goggles, 5. cataracts, 7. legs, 10. kvP

be inspIRed...

Students in the Spotlight



Yash Verma
University of Milan
Milan/IT

CIRSE: Can you tell us a little bit about yourself?

Verma: I am in my 6th year of medical school at Humanitas University in Milan, Italy. I am from the UK originally.

CIRSE: Why did you decide to study medicine and why are you interested in IR?

Verma: I have always been intrigued by medicine. It allows me to combine my critical thinking and people skills; moreover, it was always inspiring to see the physicians around me helping people. On the other hand, IR took me by surprise. What struck me was the meticulous planning, the slick use of hands and the scope for innovation.

CIRSE: How did you hear about CIRSE?

Verma: I began delving into the research side of IR, and in that endeavour, I discovered CIRSE. Immediately I wanted to get involved!

CIRSE: What do you think is the best feature of the CIRSE Student programme?

Verma: The mentoring event. I think it offers an invaluable experience for young aspirants of IR to seek guidance from experienced physicians and understand more about how their future may look. However, I am most looking forward to the students on stage session, as it will be great to connect with like-minded individuals and learn about their scopes of interest.

CIRSE: What career path are you considering? What are your next steps?

Verma: I see myself pursuing a career in academic interventional radiology; I am strongly interested in neuro-interventions.

Fong Khi Yung
Yong Loo Lin School of Medicine
National University of Singapore
Singapore/SG

CIRSE: Can you tell us a little bit more about yourself?

Yung: I am Khi Yung from the Yong Loo Lin School of Medicine, National University of Singapore.

CIRSE: Why did you decide to study medicine and why are you interested in IR?

Yung: I was interested in biology and chemistry in junior college, and medicine seems to be an avenue to pursue these interests with a human touch. IR is a rapidly developing field of medicine with a multitude of technological advancements in recent years which I find extremely exciting.

CIRSE: How did you hear about CIRSE?

Yung: I heard about this conference through my mentor, who encouraged me to submit our paper to CIRSE 2022.

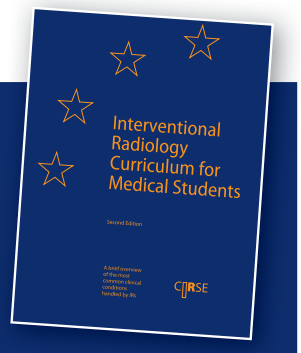
CIRSE: What do you think is the best feature of the CIRSE Student Programme?

Yung: To me, the best feature is the Students on Stage event, which allows students to have their very own avenue to showcase their research. I also hope to meet like-minded peers during this event.

CIRSE: What career path are you considering? What are your next steps?

Yung: I am currently more inclined towards procedural and surgical specialties such as vascular surgery and cardiothoracic surgery. These specialties work closely with IR and are also areas of rapid technological advancement. Nonetheless, I am keeping an open mind for other surgical specialties that I may encounter during my medical school postings.

Materials for medical students



Interventional radiology (IR) is one of the most innovative medical fields, combining minimally invasive image-guided procedures for a wide spectrum of conditions with clinical involvement, resulting in optimal patient care.

Due to its innovative nature, patient-centred treatment approach, and the ever-increasing applications of interventional procedures, IR has become one of the most interesting career choices for medical students.

Have a look at the CIRSE's IR Curriculum for Medical Students to find out about the most important procedures performed by interventional radiologists, prepare for your IR trainee programme, and learn how students can get more involved in CIRSE's various activities!

You can find relevant CVIR and CVIR Endovascular articles for students, check out the IR curriculum for medical students and discover all the great features of the CIRSE Student Programme on our website.

www.cirse.org/students/materials

IR Congress News is published as an additional source of information for all CIRSE 2022 participants. The articles and advertorials in this newspaper reflect the authors' opinions. CIRSE does not accept any responsibility regarding their content.

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European Conference on Interventional Oncology

April 16-19
Stockholm, Sweden

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LEADERS IN ONCOLOGIC INTERVENTIONS

CIRSE

Cardiovascular and Interventional Radiological Society of Europe