

## PERSONAL INFORMATION

Simone Comelli

Date of birth 01/07/1970 | Nationality Italian

## PERSONAL STATEMENT

Direttore S.C. Neuroradiologia ed Interventistica Vascolare AOBrotzu, Cagliari, Italia dal 6.2018.

Precedentemente Responsabile dell'attività di Neuroradiologia Interventistica presso ASL Città di Torino (S. Giovanni Bosco Hospital, Torino, Italy).

Oltre 15 anni di esperienza sulla patologia Vascolare Cerebrale, Spinale (aneurismi cerebrali, MAV e trattamento dello Stroke Ischemico).

Vasta esperienza in patologia Aortica e vascolare periferica, accessi vascolari per Emodialisi ed interventistica extra-vascolare epato-biliare e spinale

Oltre 20 anni di esperienza in Ecocolordoppler Vascolare, CT and CT-angio, Brain and Spine MR.

## WORK EXPERIENCE

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- |                    |   |
|--------------------|---|
| 15/06/2018 ad oggi | Direttore S.C. di Neuroradiologia ed Interventistica Vascolare presso AOBrotzu (presidio S. Michele), Cagliari, Italia  |
| 05/2005 – 06/2018  | Dirigente Medico Radiologo/Neuroradiologo Interventista ASL TO2 "Ospedale S. Giovanni Bosco", Torino (Italy) <ul style="list-style-type: none"><li>• Radiologia di Emergenza</li><li>• Radiologia e Neuroradiologia Interventistica</li><li>• AngioTC e AngioRM</li><li>• Ecocolordoppler</li></ul> |

01/2003 – 12/2006 **Specialista Radiodiagnostica, “Città della Salute e della Scienza”, Torino (Italy)**

- Specializzando Radiodiagnostica
- Radiologia Interventistica
- Radiologia Tradizionale
- Ecografia

01/1998 -11/2002 **Specialista Chirurgia Vascolare, “Città della Salute e della Scienza”, Torino (Italy)**

- Chirurgia Generale
- Chirurgia Vascolare
- Radiologia Interventistica
- Ecocolordoppler

## EDUCATION AND STAGES

- *Neuroradiology Department, Inselspital, Bern (2008)*
- *Neuroradiology Department Rechts der Isar Klinikum, Munich (Dr. Liebig) (2009)*
- *Neuroradiologie: Hopital Tete e Cou, Montpellier (Dr. Bonafe') (2010)*
- *Neuroradiology Department Clinica Sagrada Familia/ENERI (directed by Prof. Pedro Lylyk) in Buenos Aires as “hosting visitor”. (2011, 2012)*
- *Neuroradiology Department AKK, Essen (Prof. Chapot) (2013)*
- *Neuroradiologiska Kliniken Solna – Karolinska Universitetssjukhuset (2014)*
- *Neuroradiologische Klinik-Klinikum Stuttgart (Prof. Henkes) (2015)*

### 1989 – 2006 Medicine and Surgery – Degree

105/110

Università degli Studi di Torino, Facoltà di Medicina e Chirurgia, Torino (Italy)

“ *Cervical an facial district tumors: modern reconstructive techniques*”

## PERSONAL SKILLS

Mother tongue Italian

Other language **FLUENT ENGLISH (WRITTEN AND ORAL)**  
IELTS Certificate (International English Language Testing System) 2016

Good **Spanish**  
Basic **French**

**VOLUNTEERING** Medico/Medico Radiologo in Burkina Faso

Nanoro, Burkina Faso  
febbraio 2014 – marzo 2014  
Medico generale e Medico Radiologo (Radiologia Tradizionale, Ecografia, Ecocolordoppler, Interventistica Ecoguidata)

**ORGANIZATIONS** Ordine dei Medici ed Odontoiatri di Torino

**PDTA (Hospital guidelines) for:**

- Ischaemic Stroke patient selection
- Ischaemic Stroke treatment (SR mechanical thrombectomy/ADAPT)
- Hemorrhagic Stroke/SAH
- Body AVM treatment
- pancreas cancer
- biliary cancer
- hepatocarcinoma
- AVF and AVG in HD patients
- Rescue AVF/AVG

**PI studies:**

- Use of Spider X filter protection device (eV3/Medtronic) in recanalization of long complex lower limbs femoro-popliteal obstruction: retrospective clinical and anatomopathological investigation of our workflow over the period 2006-2013
- Covered Viabahn endoprosthesis use in reline of femoropopliteal extensive disease after recurrences or unsuccessful balloon angioplasty (POBA)
- Freeway 0.035" and 0.018" Paclitaxel drug-eluting balloon for steno-occlusive superficial femoral artery lesions
- Freeway 0.035" and 0.018" Paclitaxel drug-eluting balloon for steno-occlusive recurrency lesions along the efferent vein of hemodialysis vascular access

**CONGRESSI come DIRETTORE, CO-DIRETTORE o FACULTY****2013-now**

- 13-15/05/2013 **CVC e FAV Rescue** under the patronage of the Italian Society of Radiology (SIRM) and Italian Society of Nephrology (SIN) Turin, Italy
- 19-20/05/2014 **CVC e FAV Rescue** under the patronage of the Italian Society of Radiology (SIRM) and Italian Society of Nephrology (SIN) Turin, Italy
- 5-6/11/2015 **CVC e FAV Rescue** under the patronage of the Italian Society of Radiology (SIRM) and Italian Society of Nephrology (SIN) Turin, Italy

**2010- now**

**MOMOgio<sup>2</sup>- Mortality and Morbidity- Interventional Neuroradiologist and a guest Neurosurgeon** (complications and challenging cases presentation in brain vascular pathology: AVM, DAVF, aneurysms, stroke), Borgo Scopeto (Siena), Italy

**2009-now**

**Vascular Club annual meeting in Torino** (Dr. C. Rabbia)  
under the patronage of the Italian Society of Radiology (SIRM)  
Interdisciplinary course for Interventional Radiologist, Vascular Surgeons, Cardiologists  
(*open discussion of challenging cases/personal casistic on Endovascular Therapies and materials*)

**2008-now**

- **Turin Neuroscience Department 2-day training course : Neuro-Emergencies** .  
Annual Course for Radiologists, Neurologists and Emergency doctors. Turin, Italy My topic:  
- " **Uncontrollable nosebleeds** ." 2006-now
- **Inter-departmental Interventional Radiology and Cardiology Course** .  
Bi-annual, 3-day training course for doctors, radiographers and nurses. Torino, Italy My topics: " **DSA Angiography. State of the Art** " and " **Vascular Ecocolor Doppler. State of Art** "

**2006-now**

- **Departmental Neuroradiology Course on Vascular Neuroradiology:**  
Bi-annual, 3 day Training Course for doctors, radiographers and nurses. Torino, Italy  
My topic: " **Interventional Neuroradiologist: when are they needed? State of the Art.** "
- 22-24/04/2015 55th National Congress of the Society of Neurology, Neurosurgery and Neuroradiology in Italy (SNO) " **Vertebrobasilar dissecting aneurysms: personal experience.** " Como, Italy

**2017**

**DERIVO flow diverter stent (Acandis) users meeting**, Bologna, Italy  
Italian Register presentation and discussion

**2016**

-**Vasculopatie cerebrali acute: nuovi indirizzi terapeutici**, Torino, Italy

**2015**

**FRED flow diverter stent (Microvention) users meeting**, Bologna, Italy  
Italian Register presentation and discussion

**2014**

- 24/10/2014 Penumbra User meeting: **Stroke: "Preliminary experience with the new Penumbra ACE aspiration catheter"**. Biarritz, France
- 7/10/2014 Local University meeting: **"Advanced Imaging in intracranial hemorrhage: CT and CT-Angiography"**, Torino, Italy

**2013**

- 9-13/11/2013 World Federation of Interventional and Therapeutic Neuroradiology (WFITN) **"PFO related stroke: multidisciplinary approach for a better outcome"** Buenos Aires, Argentina.
- 9-13/11/2013 World Federation of Interventional and Therapeutic Neuroradiology (WFITN) **"G2 Orbit Galaxy coils: preliminary single center experience with new thermo-mechanical detachment system"** Buenos Aires, Argentina.
- 20-21/01/2013 Turin Neuro-Emergency Course: **Vasospasm: radiological diagnosis**, Turin, Italy

**2012**

- 14-17/6/2012 World Conference in Interventional Oncology (WCIO) **"Trans arterial irinotecan chemoembolization (IRI TACE) for symptomatic and intractable colorectal cancer (CC)**, Chicago IL, USA
- 1-5/6/2012 Italian Society of Radiology (SIRM) National Meeting **"Intracranial mechanical thrombectomy: single center experience"** Turin, Italy
- 17/3/2012 Italian Association of Neuroradiology (AINR) **"Flow diverters: Italian experience"**, Naples, Italy

**2011**

- 5/10/2011 Annual, local neuroscience symposium **"Challenging Neuroradiological Diagnosis: cases"** University of Turin, Turin, Italy.
- 12-16/09/2011 CIRSE Cardiovascular and Interventional Radiological Society of Europe **"Lower rectum cancer: hypothesis for a palliative chemoembolization"**, Munich, Germany
- 19-20/07/2011 GORE Symposium: **"Vascular and endovascular hybrid approach"** Varese, Italy
- 26-28/06/2011 Meeting of the forensic criminology society of Uruguay. 75 anniversary of the foundation. **"The impact of Ceasar Lombroso's theories on immigration areas like Argentina and Uruguay during the 19th and 20th century"**. Montevideo, Uruguay
- 11/05/2011 National congress of the Italian Society of Nephrology (SIN), **"AVF hemodialysis access". Single centre experience and clinical cases"** Turin, Italy
- 3-7/03/2011 European Congress of Radiology. Circle of Willis single-source Dual Energy CTA: **"Metal artifact reduction software" (MARS) in evaluation of vasospasm and residual aneurysm after endovascular approach.** Vienna, Austria

**2010**

- Society of Radiology (SIRM): **"Onyx retrograde embolisation for endoleak type 1 and 2"**, Turin, Italy
- 6-9/5/2010 Global Embolization Symposium and Technologies (GEST) **"From stab wound injury to iatrogenic vessel perforation: versatile VIABAHN (Gore, AZ) endoprosthesis in traumatic acute vascular lesions. Our preliminary experience"**. San Francisco, CA.
- 15/4/2010 Local Trauma meeting organised by Radiology and Surgery department: **"Trauma: Role of the Interventional Radiologist"** Turin, Italy.

**2008**

- 13-14/10/2008 Presentation of challenging cases during the meeting **"Challenging aorta"** organised by University of Naples, Naples, Italy

**2002**

- 1st Regional Trauma Meeting Piemonte and Valle d'Aosta. **"Limbs vascular trauma: protesic materials in vascular reconstructive surgery after trauma."** Turin, Italy

**RESEARCH PROJECTS****Imaging and neuro-interventional**

- **CT Stroke patients selection with advanced imaging**
- **CT perfusion imaging**
- **PFO related stroke**

For successful treatment by endovascular thrombectomy, the important factors are patient selection based on clinical criterion including age, time of onset, premorbid clinical condition, co-morbidities, National Institute of Health Stroke Scale, and imaging criterion including computed tomography (CT) head, CT angiogram and CT perfusion. Patients presenting within 4.5 hours of onset are considered for intravenous (IV) recombinant tissue plasminogen activator treatment. Mechanical clot retrieval devices have evolved over the past decade. The Mechanical Embolus Removal in Cerebral Ischemia device was approved first followed by the penumbra revascularization system. They have proven in various studies to improve recanalization with acceptable rates of symptomatic intra-cerebral hemorrhage. Introduction of stent retrievers has led to a new era in the interventional management of acute ischemic stroke (AIS). Recent trials namely MRCLEAN, ESCAPE, SWIFT PRIMES, and EXTEND-IA have used the stent retriever predominantly and have shown unequivocal benefit in the outcome at 90 days for AIS patients with large vessel occlusion. More recently, a new catheter namely 5 MAX ACE was introduced along with improvement in the suction device. This has led to a direct aspiration first pass technique resulting in faster recanalization. Advancements in the endovascular management of AIS with large vessel occlusion have resulted in a paradigm shift in the way this disease is managed. Improvements in patient selection using clinical and imaging criterion along with technical and technological advancements in mechanical thrombectomy have made possible a significantly improved outcome in stroke patients.

- **Atherosclerotic disease and CTA imaging**

To assess the role of CT Angiography (CTA) in patients with carotid atherosclerotic disease as compared to echo-colour Doppler (CDUS) ultrasound of the supra-aortic trunks (SAT) and surgery.

- **Vessels imaging techniques**

- new software CT (MARS) after neuroendovascular treatments
- multimodal imaging for detecting vasospasm

A newly developed fast-kV switching dual energy CT scanner with a gemstone detector generates virtual high keV images as monochromatic imaging (MI). Each MI can be reconstructed by metal artifact reduction software (MARS) to reduce metal artifact. We routinely evaluate the degree of metal artifacts reduction and vessel visualization around the platinum coils using dual energy CT with MARS.

#### Medical endovascular devices

- **DERIVO flow diverter stent** (Italian Register)
- **XL-FRED flow diverter stent** (Italian Register)

We assessed the intraprocedural success placement, clinical evolution, morphological aneurysmal/stents changes after using the new XL Flow-Redirection Endoluminal Device (FRED, Microvention) in complex cases of giant dissecting vertebro-basilar aneurysms requiring telescopic fashion reconstruction technique.

- **p64 flow diverter stents: lights and shadows**

We describe our initial experience and the technical innovations of a new-generation FDD (p64 Flow Modulation Device, Phenox, Bochum, Germany).

After treating and follow up 11 patients we focused on

Pros:

- new generation of flow diverter stents
- mesh density (64 nitinol wires)
- better radiopacity
- fully retrievable and repositionable before detachment
- in line with Literature data in terms of aneurysmal occlusion

Cons:

- despite the usually good deployment, the controlled mechanical detachment is often not "friendly"
- small straight vessels better than big tortous
- intimal hyperplasia ?

#### Technical feasibility in giant vertebro-basilar dissecting aneurysms

Flow diverter stents has shown very good results in saccular and dissecting aneurysm in anterior circulation, whereas their use is still questionable in the fusiform dissecting posterior ones. In our opinion key point for treating this pathology is the right timing. As our result has shown in these two cases, when brainstem compression or ischemic symptoms become permanently worsened, it could be too late for every kind of treatment, despite the new technology and the less overlapped stent zones. Additional point is flow perfusion of the sac. Going for more "stent in stent" treatment is obviously an option even if expensive, but in our case didn't really work out. It would be interesting to understand where and when using coiling assisted stenting could be useful, also in heavily thrombosed VB fusiform dissecting aneurysms, as presented in some reports.

#### Other interventional radiology

- **AVF hemodialysis access**
  - ultrasound ecocolorDoppler follow-up
  - **AVF rescue: multidisciplinary approach**
  - **AVF rescue: mechanical thrombectomy**

The development of various sophisticated mechanical thrombectomy devices and the amassed experience of physicians in minimal invasive therapy produced a paradigm shift in vascular access management toward percutaneous declotting procedures, using pharmaceutical thrombolysis, mechanical thrombectomy, balloon thrombectomy, and a combination of the above techniques. In this setting, in the last years, AngioJet™ (Possis, Minneapolis, MN, USA) rheolytic thrombectomy (RT) showed an increasing use in emergency and election patients. We currently use this percutaneous rheolytic thrombectomy in different fields of applications (AVF hemodialysis access rescue and in extensive pulmonary embolism).

Covered stents have been proposed as an endovascular option for recalcitrant cases of hemodialysis-related central venous occlusive disease (CVOD) or acute thrombosis. We are evaluating the efficacy and durability of covered stents in treating CVOD to preserve a functional dialysis access circuit.

Poor outcome after every hemodialysis vascular access puncture of covered stent after rescue treatment using endoprosthesis along efferent vein or prosthetic segment.

- **Tumor embolization/chemoembolization**
  - **superselective IRI-TACE for CRC**

Patients with advanced and incurable colorectal cancer have a very poor prognosis. Curative-intent resection was performed in 70%-90% of cases in reported series of colorectal cancer, sometimes after neoadjuvant chemotherapy and radiotherapy. The remaining 10%-30% of patients are treated with palliative intent, where treatment is aimed at relieving disease-related symptoms and improving quality of life. The provision of palliative care for these patients is complicated and outcomes are often disappointing. Although there are many available options including a variety of surgical and nonsurgical interventions, the best management remains controversial. Transarterial chemoembolization with irinotecan-loaded drug-eluting beads (DEBIRI) is an effective, minimally invasive procedure performed by interventional radiologists that allows intra-arterial drug delivery to stop vascular feeding and exert local cytotoxic effects.

## PROCTORING ACTIVITY

- **MEDTRONIC**  
Onyx: endovascular treatment of artero-venous malformations
- **BARD** peripheral vascular  
Training courses for physicians and commercial sellers
- **PENUMBRA** neuro and peripheral vascular  
Training courses for physicians and commercial sellers
- **CORDIS/CODMAN**  
Training courses for interventional radiology (peripheral and hemodialysis vascular accesses)

## TESTING PRODUCTS

### - **XL FRED intracranial stent**

The Flow Re-Direction Endoluminal Device (FRED) system is the next generation flow diversion device intended for the treatment of intracranial aneurysms. The FRED™ system is an innovative, uniquely paired, integrated dual-layer (stent-within-a-stent) self-expanding nitinol braided design, which is simultaneously deployed by a single operator through a .027 (0.69 mm) inner diameter Headway™ 27 microcatheter. The higher radial force outer stent, along with the low porosity-high metal surface area inner stent, unite to provide superb ease of use, enhanced stent opening, improved vessel apposition and fluoroscopic visibility, to help reduce and redirect blood flow into the aneurysm sac. The FRED™ system offers additional benefits over first generation flow diversion devices, by its ability to be partially deployed, retrieved and accurately repositioned/redeployed, without the need for a torque device.

We have been using XL Fred system also for some complex giant dissecting vertebro-basilar aneurysms.

### - **ANGIOJET Ultra Peripheral Thrombectomy System (BOSTON SCIENTIFIC)**

The AngioJet Ultra Thrombectomy System is a pharmacomechanical peripheral thrombectomy device with active aspiration and Power Pulse™ lytic delivery designed to treat the widest range of thrombosed vessels, rapidly restoring blood flow.

### - **CARDIATIS multilayer stent**

The CardiatIS Multilayer Flow Modulator (MFM®) represents a paradigm shift in the treatment of aneurysms. By remodeling the parent artery and by modulating blood flow away from the aneurysmal wall, the MFM® reduces wall shear stress, reverses the aneurysmal degenerative process, and allows endothelial tissue to regenerate. Composed of multiple layers of braided alloy, the MFM® effectively regulates blood flow and reduces pressure within the aneurysm.

### - **GORE VIABAHN endovascular covered endoprosthesis**

### - **GORE TIGRIS endovascular stent**

The GORE® TIGRIS® Vascular Stent features a dual component design, constructed from a single wire nitinol stent interconnected by a durable, biocompatible, expanded polytetrafluoroethylene (ePTFE) structure.

### - **PENUMBRA ASPIRATION SYSTEM**

### - **PENUMBRA PERIPHERAL INDIGO SYSTEM**

### - **COVERA, Bard stent grafts in cephalic arch-subclavian vein confluence restenosis in vascular access for dialysis**

### - **SINUS and XL-SINUS Optimed venous stents in re-stenosis of vascular access for dialysis**

## PUBLICATIONS

## Peer Reviewed Articles

1. Raso A. M., Varetto G., Lazzaro D., Comelli S, Cassatella R., Debernardi S., Regge D. "CT-Angio and 3D Volume Rendering software for the evaluation of extra and intracranial carotid artery stenosis". *Giornale Italiano di Chirurgia Vascolare* 2001, vol 8: 144.
2. A.M. Raso, P. Rispoli, M. Conforti, S. Comelli, D. Moniaci, M. Ortensio, G. Varetto, S. Zan. "Retriperitoneal fibrosis associated with neuritis symptomatology due to external iliac artery stent subadventitial migration". *Minerva Cardioangiol* 2001 49: 137-140.
3. Zan S, Maselli M, Moniaci D, Varetto G, Ortensio M, Apostolou D, Comelli S, Scovazzi P. "Compliance of geriatric patients subjected to antiplatelet agents with Triflusal in peripheral arteriopathy. Preliminary data." *Minerva Cardioangiol.* 2002 Jun 50(3): 263-270
4. Debernardi S, Martinchich L, Lazzaro D, Comelli S, Raso AM, Regge D "CT angiography in the assessment of carotid atherosclerotic disease: results of more than two years experience" *Radiol. Medica* 2004 July-Aug 108(1-2): 116-127
5. M. Conforti, S. Comelli, C. Melloni, M. Merlo, P. Scovazzi, M. Maselli, F. Casella C. Guiot, P. Rispoli. "Solar activity and vascular emergencies".
6. "Endovascular treatment of visceral artery aneurysms with Cardiatis multilayer flow modulator: preliminary results at six-months follow-up" *J Cardiovasc Surg (Torino)*. 2011 Jun 52(3) 311-21  
*Gazz Medl Ital - Arch Sci Med* 2005 164: 141-153. 6. Ruffino MA, Rabbia C, Comelli S  
Italian Cardiatis Registry Investigators Group
7. D'Urso L, Simone G, Rosso R, Collura D, Castelli E, Giacobbe A, Muto GL, Comelli S, Savio D, Muto G  
"Benefits and shortcomings of superselective transarterial embolization of renal tumors before zero ischemia laparoscopic partial nephrectomy"  
*Eur J Surg. Oncol.* 2014 Dec 40(12):1731-7
8. S.Comelli, C.Comelli, L.DiMaggio, D.Savio, G.P.Vaudano, C.A. Cametti "Complex giant vertebra-basilar aneurysm and new XL Fred flow diverter stent: similar cases, opposite outcome".  
Case of the month (April 2015) *ESMINT Case Book Journal*
9. Bini R, Comelli S, Addeo A, Viora T, Vana F, Vaudano GP, Savio D, Leli R  
"Inferior mesenteric artery chemoembolization and chemotherapy for advanced rectal cancer: report of a clinical case"  
*Tumori J* 2015 Jun 25 101(3)
10. Thromboaspiration technique as first approach for endovascular treatment of acute ischemic stroke: initial experience at nine Italian stroke centers.  
Romano DG, Cioni S, Vinci SL, Pero G, Comelli C, Comai A, Peschillo S, Mardighian D, Castellan L, Resta F, Piano MG, Comelli S, Barletta L, Puliti A, Leonini S, Bracco S.  
*J Neurointerv Surg.* 2017 Jan;9(1):6-10. doi: 10.1136/neurintsurg-2016-012298.
11. A novel approach to inoperable or recurrent rectal cancer by chemoembolization: A new arrow in our quiver?  
Bini R, Comelli S, Leli R, Vaudano GP, Savio D, Viora T, Addeo A.  
*Oncotarget.* 2016 Jul 19;7(29):45275-45282

## Book Chapters

1. G. Gandini, M.C. Cassinis, D. Righi, S. Barbero, S. Comelli. "Instruments for Vascular and Interventional Radiology".
2. R. Passariello: *Radiologia. Elementi di Tecnologia*. Chapter 47. Edizioni Idelson Gnocchi 2005: 581-605.
3. Suriani C, Comelli S.: "Superior limbs: veins", from *Eco-Color-Doppler Vascolare*, Rabbia C., Matricardi L., Edizioni Minerva Medica, 2006, Chapter 17 b, pag: 748-755
4. Suriani C, Comelli S.: "Lesions in percutaneous access sites", from *Eco-Color-Doppler Vascolare*, Rabbia C., Matricardi L., Edizioni Minerva Medica, 2006. Chapter 18 g, Pag: 848-858.
5. Savio D, Comelli S.: "Onxy: Technical guide and cases" Covidien Book case 2014