

# Navigating the change

Bucharest, the vibrant capital of Romania, attracts many young people, but also an increasing number of older adults who come to the city for medical care. Led by Professor Dr. Victor Costache, the team at the Sanador Clinic offers cost-effective and patient-friendly healthcare solutions that successfully address this ongoing societal change.







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Opened in 2011 Sanador Clinic is the largest private hospital in Romania. The multidisciplinary facility has over 400 beds, and 12 operating rooms.

Above  
In the mobile hybrid room, Dr. Andreea Costache takes a final look at surgical planning data at the EndoNaut<sup>1</sup> workstation.

The Sanador Clinic is in the center of Bucharest. The streets are congested with traffic, and it is hard to find a parking space close to the clinic. The city attracts many students to its universities and is the eighth largest city in the European Union with a population of 1.7 million. As in other European countries, the healthcare system is facing the challenges of demographic change and an aging society. In 2020, 19% of the population was over 65. More than half of all deaths are due to cardiovascular disease. At 30,000 square meters, Sanador Clinic is the largest private hospital in Romania, and the number one cardiovascular center in the country. People from all over Romania come to the clinic for treatment. “We want our doctors to work in the best conditions and have access to the latest

technology,” says clinic director Florin Andronescu. “This means we can offer our patients the best options, so they don’t have to travel abroad for treatment.”

Andronescu was also the driving force behind the acquisition of the mobile hybrid room. This is the first of its kind that is fully equipped with endovascular navigation in Romania. The flexible use of the mobile C-arm played an important role in the purchase decision. “We can convert any operating room into a hybrid room. In retrospect, it was exactly the right investment for us,” says Andronescu. The hospital can perform cardiovascular interventions in its two fixed hybrid rooms, or in the mobile hybrid room from Ziehm Imaging. One of Romania’s pioneering cardiovascular teams practices on the tenth floor of the modern hospital.



Above  
The team works hand-in-hand.  
Students in residency training assist  
in readying the access to the  
femoral artery.

Next page  
An endovascular aortic repair (EVAR) is  
scheduled. The cardiovascular surgeon  
Prof. Dr. Victor Costache relies on the  
support of his team in crucial situations.

Prof. Dr. Victor Costache, his wife Dr. Andreea Costache, and Dr. Anca Chitic have been colleagues for more than six years. The team joined the Sanador Clinic after working together in Sibiu and Brasov. Prof. Costache, head of the department of Cardiovascular Surgery, had experience with Ziehm Imaging C-arms prior to his position at the Sanador Clinic. He still remembers the first time he used a Ziehm Imaging C-arm during a live-surgery broadcast at a congress. “My initial concerns about not being familiar with the system quickly gave way to enthusiasm. I was immediately convinced by the quality of the images and the flexibility of the technology,” says Prof. Costache. “I was very pleased when the hospital director told me in 2022 that he had purchased the

Ziehm solution for our new hybrid room. We were able to easily connect the system to our existing equipment, like our screens. Since then, the team has been relying on the Ziehm Vision RFD Hybrid Edition<sup>2</sup> in the premium CMOSline<sup>3</sup> configuration. In addition, the team uses a Therenva EndoNaut workstation for 3D vascular image fusion, along with the corresponding EndoSize<sup>4</sup> planning software. “For us, the EndoNaut workstation is the best navigation solution available in the market for vascular procedures.”

Today’s procedure is an endovascular aortic repair (EVAR). The team reviewed the case planning in detail the night before, and now, the planning data from EndoSize is displayed on the EndoNaut, the intraoperative navigation system. This appears to be a standard intervention.







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The doctors confer about the next steps. The image fusion helps them make the right decisions together.

Above  
The guide wire is inserted into the femoral artery. Using the imaging to help navigate, arteriosclerosis in the aortic bifurcation and the iliac arteries can be treated.

Dr. Chitic and Dr. Costache prepare the approach to the femoral artery with their team. Insertion of the guide wire is more difficult than expected, but the atmosphere in the operating theatre remains focused and coordinated. Jazz music plays in the background as the first angiogram is acquired. Several new partial occlusions of the iliac artery are visible. These were not as clearly visible on the CT image used for planning. “The patient’s disease appears to be very aggressive, and the lesions have progressed much further than expected in just a few weeks. The C-arm images clearly show us why we are having problems inserting the guide wire,” says Dr. Costache. “We wouldn’t have been able to get the planned stent through the arteriosclerosis,” adds Dr. Chitic. It’s easy to see that the team,

which has been working together for years, understands each other almost intuitively. At the operating table, they quietly discuss the next steps and change their strategy. Both the well-coordinated team and the excellent setup of the mobile hybrid room give them confidence in their decisions, explains Dr. Costache. The focus is now on treating the arteriosclerosis in the aortic bifurcation and the iliac arteries to ensure the blood supply to the legs of the 68-year-old patient. The aneurysm will have to be treated in a subsequent intervention. The patient is a heavy smoker with high blood pressure, and the aortic aneurysm was only discovered by chance during a screening for aortocoronary bypass surgery. “In Romania, we often have patients with conditions that are already quite advanced because they





come to us very late,” explains Dr. Chitic. The team navigates through the blockages in the iliac arteries with the help of the EndoNaut workstation. The team agrees that the system is very helpful. It reduces the radiation dose and the use of contrast agents, and, importantly, “It helps us save time,” says Dr. Chitic. “What’s more, the workstation is easy to use. Our students in residency training also learn how to use the system very quickly.” The EndoNaut and Ziehm C-arm are used for standard operations as well as for emergencies and complex procedures. While flexibility is the main advantage for standard operations, the intraoperative fusion of the live image with planning data has proven to be a valuable tool for complex procedures. Prof. Costache is satisfied with the outcome of today’s surgery. “We had to change our

plan after the first angiography. Instead of a planned EVAR, we performed a complex dilation of the common and external iliac arteries. The superior intraoperative images and image fusion were excellent support for us in making the decision.”

For Prof. Costache, the benefits of the mobile hybrid room extend beyond the Sanador Clinic; as the former Romanian Minister of Health, he sees potential for many hospitals in Europe. “Healthcare costs are skyrocketing, and many older hospitals need to be renovated. European hospitals can no longer afford the cost of fixed hybrid rooms. The smart combination of mobile devices and endovascular navigation offers a cost-effective alternative without sacrificing comfort and image quality.”



#### The Team

Prof. Costache (below), his wife Dr. Costache (previous page) and Dr. Chitic (above) have been working together for many years. The team's

dedication to working tirelessly for their patients is matched by their commitment to training the next generation of cardiovascular surgeons.



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EndoNaut® is a registered trademark of Therenva SAS. In the USA, the EndoNaut® software obtained a substantial equivalence determination and FDA clearance through the CDRH premarket notification process (510(K)). In Europe, the EndoNaut® software is CE marked (class IIb), not eligible for reimbursement. The information provided in the labelling and manual is intended for healthcare professionals only. For the safe and successful operation and use of the device, always read the instructions.

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Ziehm Vision RFD Hybrid Edition represents a group of optional hardware and software that creates an option package on the device named Ziehm Vision RFD.

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CMOSline represents a system configuration that is based on a Ziehm Imaging CMOS flat-panel detector.

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EndoSize® is a registered trademark of Therenva SAS. In the USA, the EndoSize® software obtained a substantial equivalence determination and FDA clearance through the CDRH premarket notification process (510(K)). In Europe, the EndoSize® software is CE marked (class IIa), not eligible for reimbursement. The information provided in the labelling and manual is intended for healthcare professionals only. For the safe and successful operation and use of the device, always read the instructions.

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