Interview

Minimally invasive interventions with cordiality and high tech

Nexaris Angio-CT at University Hospital rechts der Isar of the Technical University of Munich

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Professor Philipp Paprottka, MD, Head of Interventional Radiology at University Hospital rechts der Isar of the Technical University of Munich, is sitting in his old office. Well, almost – because the room he used back then doesn't exist anymore. Today, through a glass radiation protection wall, Paprottka is surveying the control center of the department's new centerpiece. The arrival of the new Nexaris Angio-CT suite has led to a significant expansion of the range of minimally invasive, imaging-guided interventions available at the Department of Interventional Radiology.

More treatment options thanks to new technologies

The field of interventional radiology is characterized by its innovative use of technology, leading to an ever-greater range of treatments. This process is also underway in Munich: "Nowadays, I can offer our patients high-precision therapeutic techniques that didn't seem possible just a few years ago," says Paprottka. This applies not only to the treatment of acute patients in critical situations but also to patients needing planned tumor treatment. Paprottka and his team deliver these techniques using Nexaris Angio-CT, a two-room hybrid system that allows the seamless integration of images from angiography and computed tomography.

"The new system is worth every cent and every millimeter, because the technology directly benefits our patients."

Professor Philipp Paprottka, MD

Combined procedures are a game changer in modern medicine

"Two-dimensional images from angiography reach their limits when it comes to complex access routes," says Paprottka. These situations therefore call for an experienced physician who can complete the procedure successfully. Nowadays, minimally invasive procedures can also be performed by less experienced colleagues thanks to the automatic fusion of 3D images from the CT scanner, one of the two devices in the Nexaris hybrid suite.

The combination of 2D and 3D imaging from angiography and computed tomography paves the way for completely new areas of interventional radiology. The principle of a two-room system, where the devices are housed in different rooms and the CT system can be moved into the angiography room on rails, has existed for some time. "Nexaris Angio-CT is a real game changer, however, because picture information from the CT scanner can be used in angiography and angiography allows intra-arterial injection for computed tomography at the same time. For example, this enables combined interventions that require precise needle guidance and carefully targeted catheterization. That's what makes this approach so revolutionary."

Professor Philipp Paprottka, MD, Head of Interventional Radiology at University Hospital rechts der Isar of the Technical University of Munich

Intra-arterial and percutaneous tumor therapy in one session

To give a specific example, Paprottka runs through how the hybrid system can be used to combine intra-arterial and percutaneous tumor therapy within one session: "I can insert a catheter into the liver via the groin and selectively treat the liver tumor. Then, with the help of CT fluoroscopy from the second device, I can puncture it percutaneously before applying heat at the target site so that the tumor is almost completely eliminated from the inside." The experienced radiologist adds that there are, of course, other ways of carrying out these procedures – albeit involving various devices and repositioning of patients, potentially on different days or even with several-week interruptions in treatment.

Hybrid interventions currently make up around 40 percent of procedures at Paprottka's department in Munich. When no such procedures are planned, the two systems are used separately for angiography and CT scans – and a radiation protection wall is moved into the middle of the room.

Precise guidance and rapid intervention in critical situations

Professor Paprottka and his team can save valuable time by performing all angiographic and CT-guided treatment steps in one suite with no need to move the patient. These steps range from path planning to tumor embolization and ablation – that is, destroying the tumor using a transcutaneous thermal probe.

Particularly in emergencies, physicians benefit from combined workflows and the ability to switch between imaging modalities quickly. After all, rapid care and targeted stabilization are particularly urgent matters when dealing with acute polytrauma patients. As soon as internal bleeding is detected in a CT scan, the site of bleeding can be catheterized directly with the help of the angiography system. There's no need for repositioning or to subject patients to additional stress, and it's often possible to avoid administering massive transfusions – leading to improved survival rates.

"It's important for them to feel that we're here for them. With a lot of empathy, we show them that they aren't facing the serious diagnosis on their own."

Patrizia D'Antona, patient coordinator

Cutting-edge technology with a gentle cordiality

In the run-up to a clinical intervention, patients normally have lots of questions and concerns – and patients at the Department of Interventional Radiology at University Hospital rechts der Isar in Munich are no exception. Here, people like patient coordinator Patrizia D'Antona and senior radiology technologist Melanie Fritz see to it that patients are relaxed and fully informed before going into surgery. "It's important for them to feel that we're here for them. With a lot of empathy, we show them that they aren't facing the serious diagnosis on their own." For D'Antona, advanced technology and patient well-being therefore go hand in hand in modern medicine.

Melanie Fritz confirms that patients aren't scared by high technology in a hybrid OR: "In fact, it's usually the other way around. It's not only our friendly and attentive cordiality that makes patients feel at ease – many of them are also aware that new technologies mean a better chance of recovery." Moreover, the keyhole technology used in minimally invasive interventions only requires incisions of a few millimeters, thereby resulting in shorter hospital stays – and, of course, the combination of techniques within the hybrid system speeds up therapy so that many cases can be accomplished in a single session.

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Melanie Fritz , Senior radiology technologist

Where teams and knowledge grow together

The new system has also led to developments in the workflows at the department, bringing the angiography and computed tomography teams closer together as they work hand in hand on hybrid interventions. When only a single modality is needed, the groups work separately in their own areas of expertise. They have also found that the job is becoming more attractive for radiology technologists thanks to training opportunities available in the relatively young field of hybrid systems.

Fritz appreciates the new way of working, which has also led to some changes: "We can work with physicians directly at the table and in the control room, which has a positive effect on collaboration, resulting in shorter lines of communication." For Paprottka, although the new system was undoubtedly a major investment, it was worthwhile from a financial perspective. Indeed, it is already allowing them to accelerate workflows and increase throughput – both of the individual modalities and of the combined solution.

Planned down to the last detail – with an innovation partner on an equal footing

In Munich, they are in no doubt that optimum results can only be obtained through teamwork. According to Professor Paprottka, in tech-savvy fields such as interventional radiology, it's necessary to work with an equal partner that can put medical ideas into practice and, in turn, apply feedback from clinical practice to the further development of medical technology.

The team has been pursuing this approach with Siemens Healthineers for over 10 years in a partnership that is based on reciprocal exchange and high regard for each other's expertise. It also includes the time for the detailed planning of structural alterations, which was needed to accommodate the Nexaris Angio-CT two-room hybrid system.

Nexaris Angio-CT

Computed tomography and angiography are united by a common coordinate system. With Instant Fusion, CT images can be instantly overlaid with live fluoroscopy to give practitioners quick and easy access to all relevant picture information.

Learn more about Nexaris Angio-CT:

↗ **https://www.siemens-healthineers.com/angio/nexaris-therapy-suites/nexaris-angio-ct**

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