



Meeting the demands of modern vascular surgery with Alphenix

An interview with Dr. Vikram Puttaswamy

For Dr. Vikram Puttaswamy, vascular and renal transplant surgeon at Royal North Shore Hospital (RNSH), imaging quality plays a critical role in guiding clinical decision-making. With more than 90% of his vascular procedures now performed endovascularly, his team depends on imaging systems that deliver clarity, flexibility, and low-dose performance for increasingly complex interventions.

"You need complete confidence in what you're seeing, because your treatment decisions depend on it," he says. "That shift to endovascular would never have happened without high-quality imaging."



Dr. Vikram Puttaswamy is Head of the Department of Vascular and Renal Transplant Surgery at Royal North Shore Hospital. With over 20 years of practice in both public and private sectors, he is a FRACS-trained specialist in major and complex endovascular and open vascular procedures, including aneurysm repair, carotid surgery, renal transplantation access, and peripheral arterial interventions.

Imaging that keeps pace with complexity

In 2024, RNSH introduced its latest hybrid imaging suite featuring Canon Medical's Alphenix interventional system. While it marks the continuation of a long-standing collaboration, the decision to install Canon was driven by the system's ability to meet the increasing complexity of modern vascular procedures.

"Alphenix gives us exceptional spatial resolution and clarity," says Dr. Puttaswamy. "As the imaging gets clearer, our ability to do procedures with even more confidence increases. A lot of it comes down to confidence in your imaging. When you're choosing between multiple treatment options, you want the safest and best path. With Alphenix, the clarity and precision help us make those decisions with certainty."

In treating areas like the aortic arch with catheter-based techniques, the need for precise, intuitive, and safe imaging becomes ever more critical. "At the beginning of my career, 90% of our procedures were open surgeries," says Dr. Puttaswamy. "Now, 90% are endovascular. That shift has been powered by advances in imaging and technology, and Canon Medical's Alphenix system has played a major role in enabling that."

The current lab supports procedures ranging from thoracoabdominal repairs to dialysis access and integrates features that enhance both safety and efficiency. Canon's Dose Tracking System (DTS) offers real-time visual feedback on radiation distribution, helping clinicians optimise angulation and reduce unnecessary exposure for both staff and patients. As Dr. Puttaswamy puts it, "It's made everything a lot more efficient, more accurate, and safer."

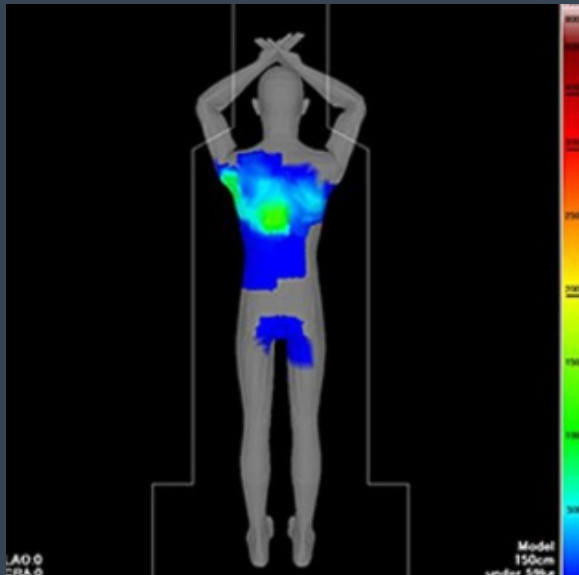
Enabling innovation and high-risk care

As a recognised centre of excellence in complex vascular and transplant procedures, RNSH is also a frequent site for first-in-human trials and global research collaborations. The combination of surgical capability and advanced imaging has enabled the team to tackle cases that many centres would avoid.

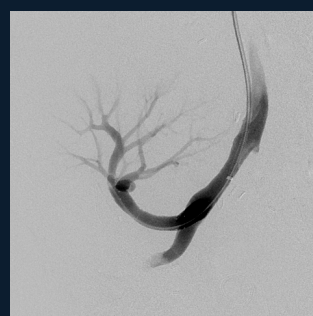
One such case involved a transplant patient with arterial stenosis identified shortly after surgery. "Traditionally, this kind of intervention would be considered too risky," explains Dr. Puttaswamy. "But using Canon's live ultrasound and low-dose fluoroscopy, we were able to place a stent precisely, preserve function, and confirm success in real time. That patient kept their kidney because we had the right tools."

Dose Tracking System (DTS)

DTS offers real-time monitoring of patient skin dose. It provides a colour-coded graphic and actionable insights, enabling immediate adjustments during procedures.



RNSH renal transplant case



Successful endovascular stenting of a significant mid-segment stenosis in a transplanted renal artery using IVUS guidance and a drug-eluting stent, resulting in restored perfusion and no residual stenosis.

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Multimodality imaging integration

RNSH's approach goes beyond fluoroscopy. Intra-operative ultrasound, especially Canon's Superb Micro-Vascular Imaging (SMI), is integrated into vascular workflows to visualise low-velocity blood flow without contrast. This supports early complication detection and refines procedural planning.

Combine SMI with Alphenix Hi-Def capabilities, and you're provided with exceptional detail in visualising fine vascular structures and blood flow. This is especially critical for complex decision-making and for improving diagnostic confidence in cases where precision is paramount.

The Hi-Definition detector on the Alphenix interventional system provides twice the spatial resolution of conventional flat panel detectors to help clinicians visualise fine detail and deploy devices with accuracy and confidence.

Compact and flexible for a hybrid theatre

The latest Alphenix features a compact, ceiling-mounted design that maximises floor space and gives clinicians 360-degree access around the patient, vital for procedures that require access to the groin, arms, or neck.

The system's flexibility and configurability also allow for a seamless blend of open and endovascular procedures. While minimally invasive techniques dominate, the team still perform complex open surgeries, often in the same hybrid theatre.

"There's virtually nothing we can't do in this space," says Dr. Puttaswamy. "It's configured for any specialty: cardiac, neuro, orthopaedics, even major trauma. And the Alphenix's small footprint makes it an ideal fit for a hybrid theatre environment."



“ Alphenix gives us exceptional spatial resolution and clarity. ”



A partnership built on clinical alignment

As for the continuing partnership between RNSH and Canon Medical, "We've had a good relationship from the start," says Dr. Puttaswamy.

"Canon has consistently listened, adapted, and provided the tools we need to evolve our practice," he says. "Each generation of system has pushed us forward, enabling safer, more precise, and more ambitious vascular care."

Reliability has also been a key factor in that trust. "We found that Canon were particularly good at responding quickly, and we had a very low downtime rate with the system," he adds. "That kind of consistency is critical when you're running complex procedures every day."



Revascularisation of high-grade common iliac artery disease (left) using shockwave lithotripsy and drug-coated balloon angioplasty, followed by bilateral kissing stents in the common iliac arteries. Immediate post-procedure assessment indicates a successful revascularisation (right).

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