Physician Testimonial

Dr. Stephen Murray

James Cook University Hospital, Middlesbrough, UK

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About 700,000 people in the United Kingdom have some form of cardiac arrhythmia. Atrial fibrillation, a common arrhythmia particularly in older people, consumes about one percent of the National Health Services (NHS) budget, despite the fact that curative approaches are available. With electrophysiologists in relatively short supply and an imperfect chain of referral, Dr. Stephen Murray at the James Cook University Hospital in Middlesborough, England, has come to appreciate firsthand the role of advanced technology in helping manage the growing problem of cardiac arrhythmias, particularly atrial fibrillation.

Dr Murray carries out over 250 ablations per year, of which around 80 are AF ablations. Prior to October 2007, his redo rate for AF patients was approximately 30% with a complication rate of almost 7%. In his standard approach, a double transseptal puncture was used to access the left atrium and then a common lasso-type catheter was combined with an advanced three-dimensional imaging system (NavX) to perform the ablation. "The double transseptal with lasso and NavX was my preferred approach," he recollected. "PAF patients underwent PVI using wide area ablation, and I routinely put in a roof line. Chronic cases (which only accounted for

20% of the cases) had the same plus CFAE ablation."

The time and cost required for this approach made him eager to look at new technologies. "My average patient is 60 to 70 years old," he reported. Procedures could be tedious and time consuming. In fact, the facility never did more than two AF ablations per day, because the cases were so unpredictable. With a growing waiting list and procedures that could sometimes seem open-ended in terms of time requirement, he was very open to ideas to streamline things.

When seeing patients in clinic, they were many who could in theory be eligible for the procedure, but the constraints on procedure time, complications in the over-65 population, and redo rates were a major concern. Nevertheless, patients were listed for the procedure.

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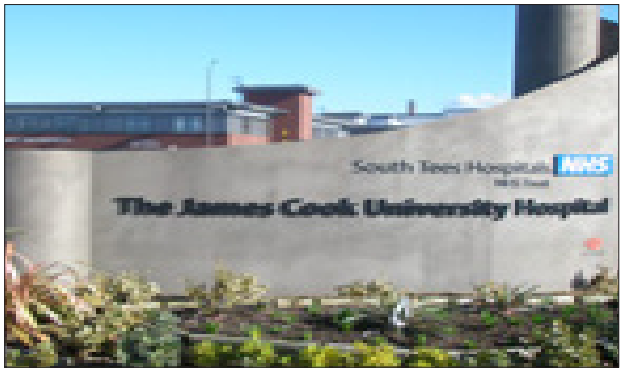
Around October 2007, Dr. Murray met with Ablation Frontiers to discuss an innovative new set of ablation catheter and multi-channel, duty cycled RF generator. While attending a clinical mentoring case (CMC), he saw the devices in action. The CMC is a novel approach to physician training that allows a physician to work side-by-side on a procedure with another physician who is familiar with the devices.



"It's nice to chat with someone who's done more of these cases than you," Dr. Murray recounted of his experience at CMC. Even more beneficial was the ability to see the products in action rather than just study them. "Some of the tips and tricks with the catheter handling are hard to explain, but when you see someone else doing them, it helps you to understand how to get the best from the system." The CMC is a one-day intensive program involving didactic sessions and case observations.

By November, Dr. Murray had imported this new technology into his clinic, which required some adjustments to his technique but not a steep learning curve, particularly when one is already comfortable with left atrial ablation. With other catheters, the device was inserted into the body, maneuvered to the heart, and only when the catheter tip was inside the heart did the physician really need to focus on moving it precisely. The Ablation Frontier system was different.

"It's a slightly different approach," Dr. Murray stated. "It was a novel experience. It's not so much the learning curve, it's a case of slowing down a little bit. A lot of the preparation takes place outside the patient, as the PVAC takes a bit more care and attention with its handling, including the loading of the wire. But it's really straightforward."

Once the catheter was inside the heart, Dr. Murray found that the device operated quite differently from what he had been trained with. "It was a paradigm shift," he commented. "You can push it hard against the wall of the vessel, which is a complete contradiction to what you've been trained to do. But the catheter has got to be pretty safe." The design of the catheter makes it such that this kind of pressure is completely safe, even appropriate. A perforation is virtually impossible with the catheter design.

While the catheter required somewhat of a novel approach for a person trained with conventional catheters, the multi-channel, duty cycled RF generator was also a paradigm shift.

"The power from the generator takes a bit to get used to," Dr. Murray recalled. The duty cycled RF generator uses much less energy than comparable systems."When ablating at 4-10 watts I found myself wondering, 'is it really working?' but I could see that e-grams were ablating and that the rythym was organizing."

The unique catheter shape and generator design makes uniform wide-area lesions with much less energy and more efficiency than prior systems.

"We have not had a case where we could not achieve the outcome, complete PV isolation (which we defined bidirectional block across the vein)." Dr. Murray said,"We now have early data on over 30 patients, and I'm pleased to report zero complications, and a success rate of >80%, although it's obviously early days with regard to follow up."

The acute success of the Ablation Frontiers system has caused Dr. Murray to change the way he is handling atrial fibrillation ablations at his institution. Procedure times, which used to be regarded as more or less open-ended, have not only dropped sharply but have approached predictability.

"Skin-to-skin is about 90 minutes," Dr. Murray commented, "And we are consistently spending less than 60 minutes in the LA. We used to routinely do two patients at week, and sometimes we'd cut that down to one because it might be a re-do with an atypical peri-mitral flutter. Now for paroxysmal atrial fibrillation, it's

three in a day and we're finishing earlier."

When the Ablation Frontiers system was first introduced to the clinic, Dr. Murray enthusiastically scheduled three cases a week. "We started with three on, once a week. It's been really easy. It's possible to schedule now. We could do four cases a day. It would have been foolhardy to attempt that previously."

In fact, atrial fibrillation ablation scheduling represented a problem both to patients and the clinic.

"We've done about four months' work in the last 12 weeks," Dr. Murray reported. "We're ahead of schedule by a month and a half. The procedures are less sapping, meaning that it's now feasible to plan 2 days of AF work, each with 3 cases – something we've recently been doing"

The transition from two cases of indeterminate length a week to six cases of predictable length a week has increased patient throughput. The best result is that patients on the waiting list are moving up more rapidly in line, without placing undue burden on the limited resources of the clinic.

Cost concerns affect healthcare providers around the world.

"For a PVI, this method really is cheaper and fast. I can't give precise figures, but we are probably saving about £2,000 a case," he estimated. "I guess you could also say we save money by throughput, but that's harder to demonstrate in this health care system."

While it appears that the new Ablation Frontier system will benefit the clinic for a certain type of case, Dr. Murray has pondered whether this system can apply to challenging cases as well. He has already used the system on a case he knew would be particularly difficult. "I was in the left atrium about an hour," he remarked about this particularly challenging procedure. "And that's as hard as it gets."

While he is quick to state that point-to-point atrial fibrillation ablations cannot truly be classified as "difficult," he remembers them as laborious interventions. "They are slow and you have to keep one eye on the blood pressure and one eye on the e-gram the whole time."

While Dr. Murray is intrigued by new innovations in robotics, he does not see any need for robotic or magnetic steering approaches for such cases. "I like the look of the robotic steering system, and I might incorporate those tools for some cases, but not for a straightforward PVI."

Dr. Murray had been using NavX for atrial fibrillation ablations as recently as last fall.

"We've stopped using it for PAF cases," he said describing imaging for his PVI patients. "We don't need it. For some chronic, persistent cases, it might be useful perhaps. So there might be an area where it would still be useful."

Dr. Murray used to view atrial fibrillation patients with a certain degree of trepidation, because some cases were notoriously difficult to treat. When patients had to return to the clinic with atrial fibrillation post-procedure, it created a great deal of frustration for him and stress for the entire clinical team. The new system from Ablation Frontiers has changed all that. "It's saved me a lot of headaches," he said.

"I've started enjoying PVIs again. I can offer this procedure now with a degree of confidence that it's a relatively low-risk intervention that won't cause problems." ■