A center of excellence for catheter ablation

Philips EP solutions promote procedural efficiency

Who/where
St. Rose Dominican Hospital – San Martin Campus
Las Vegas, Nevada
USA

Challenge
Offer state-of-the-art electrophysiology services to an underserved community

Solution
Employ Philips EP solutions including three-dimensional atriography and ablation lesion tagging

St. Rose Dominican Hospital uses three-dimensional atriography and advanced ablation lesion tagging for left atrium work.

Dr. Erik Sirulnick, director of the electrophysiology lab at St. Rose Dominican Hospital and partner at Cardiovascular Consultants of Nevada, is employing some of the most advanced technology available to visualize and map the heart during treatment of cardiac arrhythmias.

Erik Sirulnick, MD

The EP lab at St. Rose's San Martin campus recently installed a comprehensive set of Philips electrophysiology tools to support Dr. Sirulnick:

- **Allura Xper FD10 X-ray system** – a ceiling suspended, flat detector system capable of acquiring high-quality, low X-ray dose cardiac images in AP, lateral view or rotational scan
- **EP cockpit** – an innovative EP suite that streamlines and integrates various third-party equipment found in the lab for a more intuitive, clutter-free work environment
- **EP navigator** – a tool to visualize 3D cardiac anatomy using either a pre-procedural CT or three-dimensional atriography (3DATG) which overlays on fluoro to show the position of catheters, in real time, in one image

EP navigator with 3DATG allows users to easily create 3D images of the left atrium in the EP lab. And the unique Philips/BARD® ablation lesion tagging tool within EP navigator gives Dr. Sirulnick a convenient way to automatically track lesion sets on this 3D image.

"The first case that we did using the new Philips equipment was a slam dunk," recalls Sirulnick. "It was a beautiful case. I was able to use the whole system to its maximum. I was able to apply all the available technology in the way that I had foreseen, and I found it to be extraordinarily effective."

Meeting a perceived need

With almost two million people in the greater Las Vegas area, Dr. Sirulnick is one of only ten electrophysiologists in the region. "This is

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definitely an under-penetrated market," says Sirulnick. "Of those ten electrophysiologists, perhaps only half offer a full range of EP services. Many refer their more complex cases to us."

Believing that a stand-out facility would attract patients, administrators at St. Rose turned to Sirulnick to assist in configuration of an EP room with the capability to support advanced EP work.

"They asked me to help choose the equipment and orchestrate the creation of the lab," notes Sirulnick. "My goal was to make it a center of excellence with state-of-the-art equipment for left atrial ablation procedures."

The selection team spoke with all competing vendors and had a chance to review their offerings. Philips provided the team with an opportunity to see the system at work on a live case. It was the demonstration of EP navigator's ability to acquire, in real time, a three-dimensional image of the left atrium and incorporate it into the fluoroscopy system that sold Dr. Sirulnick.

"That became the standard I wanted to achieve in my practice," he says.

An organized, procedure-ready room

At the heart of St. Rose's new EP room is the ceiling-suspended Philips Allura Xper FD10 X-ray system. This fully flexible system integrates the latest technologies in high resolution flat detector imaging with advanced 3D applications. Its system design allows efficient procedures and excellent clinician comfort.

Philips EP cockpit helps further simplify the EP lab by improving the work environment and integrating critical procedural data. This innovative tool organizes and displays data from diverse technologies. One component of the EP cockpit suite is a ceiling suspended equipment rack. Instead of equipment and cables covering the floor, the equipment rack holds critical components such as mapping, recording, and ablation systems. With no cables to entangle, the grouped systems can be moved easily to any spot around the table.

Another major component of the EP cockpit is the ability to display the data from all these systems in the exam room and the control room, in any position desired. The images on these monitors are fully switchable and can be assigned by the physician or staff 'on the fly'. Dr. Sirulnick uses a combination during his ablation procedures that include 3D mapping, intracardiac ultrasound, recording, electrogram, and fluoroscopy (live and review). He explains, "We have eight monitors, two more than typical, and I even feel we could use another one. There's so much information we're incorporating into the procedures – there are layer upon layer of technology. And at my whim, I can reconfigure the monitor displays any way I want."

The new Philips EP equipment offers Dr. Sirulnick a clean, open EP room, poised to meet the challenges of complex cases.

Soon after installation, Dr. Sirulnick's first patient presented with a symptomatic complex arrhythmia originating from the left atrium. "She was miserable despite trying different anti-arrhythmic drugs and was a candidate for catheter ablation."

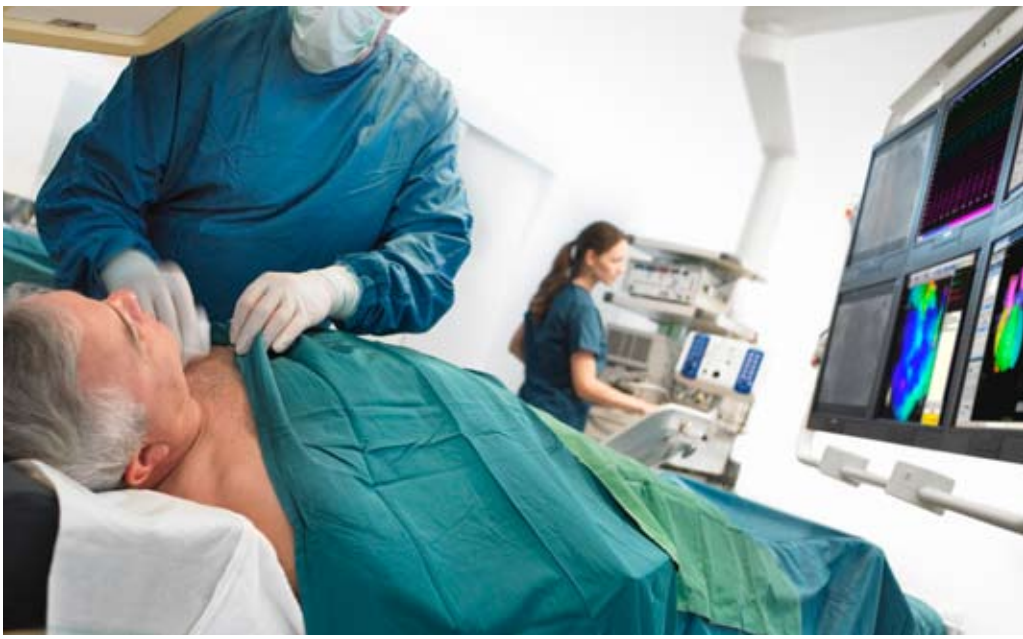
Three-dimensional atriography

"Gaining a sense of the three-dimensional structure of the left atrium, that's the real challenge with these procedures," states Sirulnick. "I think that's where the successes and failures are often determined."

"The Point Tagging system allows us to know where we've been. It gives us a sense of the integrity of the lesion sets that we're making."

Erik Sirulnick, MD

Philips EP navigator is a tool to help visualize 3D cardiac anatomy overlaid on top of the fluoroscopic image. Typically, it allows for the use of a pre-interventional CT image, or a rotational angiography (3DATG) acquired in the EP lab, to be segmented and registered with live fluoroscopy. The resulting composite image provides an indication of the position of all catheters in real time, in relation to 3D anatomy of the heart.



Sirulnick put it to work during this first case. "Before we began," he says "we acquired the left atrial image using 3DATG. We injected iodine contrast in the right atrium and waited the appropriate time for it to pass into the pulmonary veins. Then we did the rotational scan to create the three dimensional structure, or shell of the patient's left atrium. The time it took from injection to acquisition to processing, then seeing it up on the screen was only a matter of minutes."

The resulting image gave Sirulnick a good sense of the three-dimensional anatomy. "I was able to see the roof of her left atrium and how it melded into her left superior vein system. It showed a concavity or slope that I would not have imagined. It allowed me to place my lesions sets more effectively."

Fast and easy Point Tagging

EP navigator with 3DATG is the first half of a dynamic combination of technologies – Point Tagging is the other. Together they help to optimize ablation procedures in the EP lab.

Mapping the cardiac chamber of interest is no longer a tedious affair. Ablation lesion tagging or "Point Tagging" is the result of collaboration between Philips Healthcare and Bard Electrophysiology. Using the latest version of EP navigator and a Philips-ready version of a BARD® Steerable Diagnostic Catheter, physicians can easily mark the sites of ablation lesions on 3DATG anatomy.

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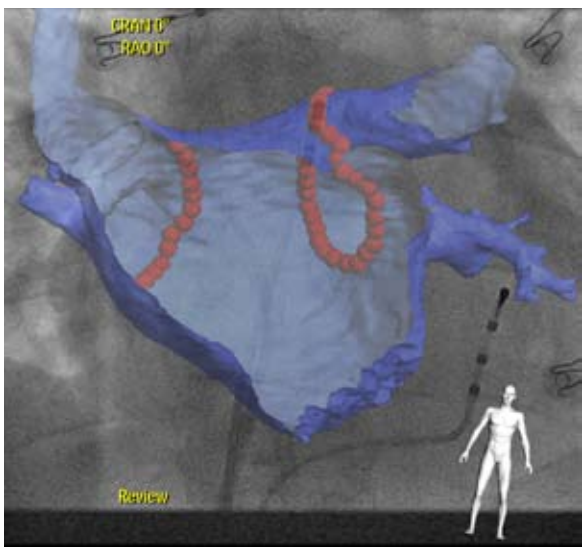


According to Sirulnick, his patient required a standard pulmonary vein antral lesion set. "We used the ablation catheter to make the lesion sets, guided by the Point Tagging system. We created lesions with complete lines of block quite rapidly. An intracardiac ultrasound helped corroborate our work."

Given the clarity and immediacy of 3DATG, Sirulnick was able to use the Point Tagging system to demonstrate exactly where along the image the lesions were being created. "The 3DATG image

"In my opinion, a-fib ablation procedures are going to be more successful."

Erik Sirulnick, MD

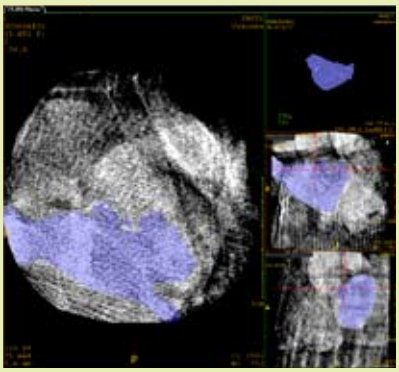
is particularly pertinent to the case," he maintains, "because it's done right on the table and it's a very real reconstruction. Being able to place the point tags on that virtual image brings true value to the case."

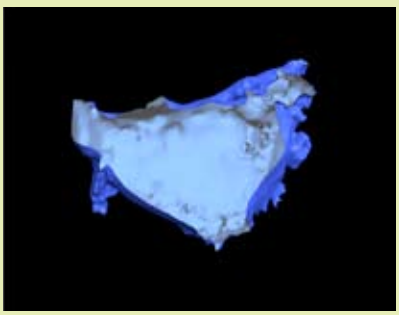
A certain procedural efficiency may also be realized when simple tagging can be accomplished without the introduction of traditional third-party EP mapping systems. Sirulnick sees the benefit, "With Point Tagging you're not trying to bring some other technology into the case that's not associated with the 3DATG image. That Philips 'shell' image becomes the gold standard of the case, so it's central to anatomical reality to put the lesion points on that image."

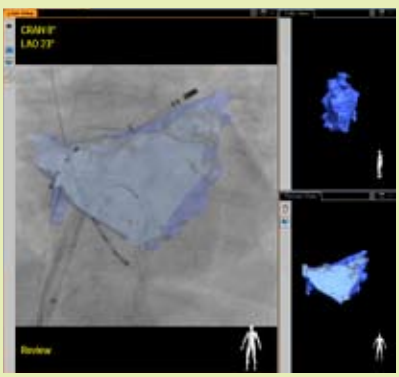
Procedural efficiency is enhanced

The EP team at St. Rose believes that EP navigator with 3DATG and Point Tagging, in conjunction with real-time intracardiac ultrasound, combine to make a-fib ablations more efficient. Thanks to a strong product portfolio and close collaboration with some of the most important players in the EP sector, Philips is helping to enhance this efficiency by continuing to reduce complexity from the EP environment.

Tools like EP navigator, 3DATG and Point Tagging can allow physicians to work with more control and confidence. In Sirulick's opinion, "A-fib ablation procedures are going to be more successful."







By providing a detailed 3D anatomical view of the left atrium, physical boundaries become more apparent, orientation clearer. "When you take patients through these types of procedures, the risk of perforation is considerable," says Sirulnick. "Anything we can do to decrease that risk is critical to making the procedure safer. That's what it's all about. When you have a good sense of where the true boundaries of the tissue are, then you have the opportunity to reduce the risk of complication."

Poised to deliver

Success of any procedure goes hand in hand with accuracy. The new EP lab at St. Rose Dominican Hospital assists in targeted treatment of even the most difficult electrophysiology cases. Superb imaging at low X-ray dose, instant access to multi-modality information, and advanced, easy-to-use image processing tools, combines to give electrophysiologists the means to achieve success. Sirulnick agrees: "The Philips system is a pretty powerful system to have at your fingertips."

It continues to reinforce the promise of distinction in a community ready for EP progress. "The St. Rose EP facility is now a center of excellence in Las Vegas for catheter ablation, and specifically for diseases involving the left atrium," concludes Sirulnick.

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