

Bringing The Promise Of Networking To Minimally Invasive Surgery



With the rise of minimally invasive surgery, imaging in the OR has become increasingly important. Furthermore, the ability for facilities to manage the image data captured is crucial. To meet this need, Pointe Conception Medical (PC Medical) in Santa Barbara, CA, has developed the EndoHub™ Hardware and EndoPresence™ Software Suites. This patent-pending integrated endoscopic video and browser-based documentation system allows for easier access and management of images and videos with integrated networking, web server and video streaming over IP.

As Bruce Kennedy, President and CEO of PC Medical, explains, the system essentially “finally brings networking to minimally invasive surgery” by providing high definition (HD) image quality with the option of a single or three CCD HD camera systems to meet the needs of all cost sensitive markets. The system captures video and still images per each physician’s customized preferences, and then transports images electronically for critical documentation purposes such as:

- Browser based interfaces pushes all non-critical work outside the room
- Live video streaming (IP Cameras) and surgical still image access anywhere in the world via Web-Browser
- Archive to servers, EMR systems, URLs and personal PCs
- Sharing of live content (Stills and Streaming Video) to mobile devices, tablet PCs etc.
- Real-Time training, Education, proctoring and consulting via EndoPresence™
- Leverage new “Apps” and other emerging mobile solutions

In a single, integrated device, the EndoHub™ Networked Surgical Camera System utilizes EndoPresence™ Interface Software and EndoPresence™ “Push” Content Delivery to capture, review, share and archive images.

The EndoHub products include advanced functionality including even a high powered 50,000 hour surgical LED light source, browser based access and ease of use not found in any surgical products especially in this price range.



Recently, *Surgical Products* spoke with Christopher Proctor, MD, an orthopedic surgeon in Santa Barbara, CA. Specializing in knee and shoulder arthroscopic surgery, Dr. Proctor has used the PC Medical technology for the last couple of years. Here, he discusses how the technology is a step up for arthroscopic imaging as well imaging for other specialties, and the important role it could play in telemedicine –an increasingly important capability for the surgical community.

***Surgical Products:* How did you get started using the PC Medical technology? Were there certain needs you were looking to meet that this technology met for you?**

Dr. Proctor: I heard about the company before they even had a product developed and was excited about the thought of using high-end, arthroscopic equipment that offers the next-generation jump in technology.

All the arthroscopic equipment available today produces very high-image quality. They've all quickly jumped into the high-definition realm, but most technology requires proprietary software. So, instead of it being like a computer in your house in which you get a computer with a HD monitor, you can plug in any CD and it works or you can hook up any printer that you buy, with most technologies, surgeons had to buy their printer and use their software. It wasn't very compatible with any other equipment and it made it expensive. Further, the equipment couldn't communicate with other systems

Then, this idea came along of trying to be a computer-based system in a sense that you can plug any printer, USB memory stick, or even your iPod, into [EndoHub™] and retrieve your pictures. It is also hooked up to the Internet so you can stream your images to anywhere in the world through a secure website. You can watch on your iPhone or have the pictures automatically sent to your office. With other technologies, you had to print your pictures in hard copy or burn a CD, but that's

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not very convenient in today's day in age. This is important not only for surgeon convenience and the flow in the OR, but also for getting all this equipment compatible with EMRs in the future.

SP: Are there specific cases or types of procedures this technology is being used for?

Dr. Proctor: Right now, I am using it for arthroscopic orthopedic surgery. It's also being used for endoscopic surgery, which is the same equipment basically, but the systems can also being used for abdominal, urologic and gynecologic.

SP: Why is it important for a surgeon to stream images or watch on an iPhone? What does this provide for the surgical community?

Dr. Proctor: Whether it's a medical school teaching students, orthopedic surgeons teaching their residents, or an orthopedic conference where a surgeon is going to do live demonstration, it can be expensive and difficult to set up the cameras and the systems to broadcast surgeries from one OR to another location for people to watch.

With this system, it's already hooked up to the Ethernet, so anyone in the world can log into the website and get a live streaming of what's going on with the surgery. They can see what is going on and communicate. It doesn't take any infrastructure setup. The computer already does it; you just go to a website and watch.

SP: Do you foresee this type of technology expanding to other specialties or surgical spaces, say, the hybrid OR for example?

Dr. Proctor: This technology is much more robust than just the simple arthroscopic surgery setting. Any case where you're creating an electronic image, it can be streamed anywhere. It gets into telemedicine where you have the images in one place with the patient and other surgeons or specialists can consult anywhere else in the world. Someone can be in the operating room and say, 'this is what we're seeing,' and get a consultant in a completely different place and see what they're seeing in the operating room real time. PC Medical is able to do this with arthroscopic equipment and it could be adapted to whatever imaging equipment already out there.

SP: How does this technology impact the workflow in the OR, if at all?

Dr. Proctor: Space can be tight in an operating rooms setting. You get this massive equipment around. Right now, there are systems that have a whole tower of equipment where you have one large box that has the camera equipment and the video equipment, and then there is another large box for the image capturing equipment to take the actual images. Then you have usually a printer in the OR and large box which is your light source because the arthroscopic equipment requires a high-powered light so you can see what is going on inside.

This shrinks the entire thing down to one medium-sized box instead of four large

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boxes. It helps with cost savings, ease of use in the OR and being able to quickly set up and move the equipment around.

It is also easier to use for the nurses. The equipment is almost always handled and manipulated by the nurses. They have to enter the data into it and they have to do all the settings. It's time consuming. Furthermore, nurses are not the most technical savvy. They went into nursing because they're good with their people skills. They relate to people. They care about people. Now, they're expected to manage - in a high-stress situation - this incredibly complex electronic system and many of them struggle. Something goes wrong and you have four different boxes are all connected and they don't know what to do. It's more simplified by having just one box where it's all integrated together. This system moves to the next generation in terms of how it uses that image information. It brings it up into the modern electronic age.

SP: What do you see for the future?

Dr. Proctor: I think our surgical advances keep progressing in terms of our equipment and imaging no different. As we do more minimally invasively, this technology fits right in there. Also, I think it will be incorporated as we get more robotic instruments. There are some surgical robots available right now, but the instruments aren't articulated down the whole length and they're not as articulated as they could be in the future. I think this technology fits right in with that.

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