



My First 50 Micro-invasive Carpal Tunnel Release Procedures

Paul Paterson, M.D.

General Physicians PC, Chief of Hand and Upper Extremity Surgery,
Erie County Medical Center, Buffalo, N.Y.

Dr. Paterson is a board certified, Harvard fellowship trained Orthopedic Surgeon who has been treating patients with carpal tunnel syndrome for over 20 years. Dr. Paterson started offering ultrasound-guided, micro-invasive carpal tunnel release using the SX-One MicroKnife® to his patients. He recently took the opportunity to share his experience with his first 50 micro-invasive carpal tunnel release procedures.

Q. What was your preferred technique for carpal tunnel release prior to adopting ultrasound-guided, micro-invasive carpal tunnel release using the SX-One MicroKnife®?

I performed almost all of my carpal tunnel releases endoscopically. I do about 300-400 cases per year, and have probably done about 6,000 during my career.

Q. What interested you most about micro-invasive carpal tunnel release when you first heard about it?

I have always been patient focused and continuously searching for ways to improve both the surgical and recovery experiences for our patients. We've also been searching for a way to change the point of service for carpal tunnel surgery. Specifically, I wanted to be able to move carpal tunnel surgery into the office setting while ensuring patient safety and optimizing outcomes.

Performing endoscopic surgery in the office is impractical. During endoscopic carpal tunnel release, it can be challenging to keep the patient comfortable using local anesthesia; and it's not realistic to move the endoscopic equipment into the office. While open carpal tunnel surgery doesn't require specialized equipment, you subject the patient to a more painful scar and a longer recovery time.

I wanted the best characteristics of all possible options plus some additional benefits that we only get with micro-invasive carpal tunnel release. I wanted to find a procedure that I could perform reliably using only a local anesthetic, with the patient being incredibly comfortable, and that would provide the short recovery time I was seeing with my endoscopic carpal tunnel releases. In short, we wanted the smallest possible incision, a great overall experience for the patient, and a procedure we could do in the office under local anesthesia.

Q. What was the most challenging aspect of learning the procedure?

As an Orthopedic Surgeon, I had no previous training in ultrasound. Learning ultrasound guidance for me was the most challenging aspect of the procedure. It takes practice to become comfortable holding the probe and to understand what you're seeing on the screen. However, as a surgeon I got comfortable with it quickly because I already knew the anatomy so well.

Q. Were there any other challenges?

Not really. Once I learned the ultrasound, the ergonomics of the procedure are very similar to how I've performed endoscopic carpal tunnel release for over 20 years. However, unlike endoscopic surgery, with ultrasound guidance I was able to see where the device was relative to all the structures in the carpal tunnel region, including the ones I did not want to injure. You can't do that

"...unlike endoscopic surgery, with ultrasound guidance I was able to see where the device was relative to all the structures in the carpal tunnel region..."

with standard endoscopic carpal tunnel releases. The only thing you see during an endoscopic carpal tunnel release is the thing that you are going to cut and you're trusting that everything around you is safe.

Q. What do you like most about the design of the SX-One MicroKnife®?

For me it's two things. First, the device is perfectly sized for what you want to do. It can be passed into the carpal

"...because of the inflatable balloons my comfort level with respect to safety is orders of magnitude greater than using other techniques..."

"There is a great sense of relief as I watch the balloons push the median nerve away from the cutting knife."

tunnel through a small incision and doesn't crowd the carpal tunnel. Yet, it is easy to see on the ultrasound machine. Second, because of the inflatable balloons my comfort level with respect to safety is orders of magnitude greater than using other techniques. After I get the device into position and check the surrounding structures, I deploy the balloons. There is a great sense of relief as I watch the balloons push the median nerve away from the cutting knife. It's just like – okay, I'm good...I'm all right...we're good here.

Q. Let's talk about your first cases performing ultrasound-guided micro-invasive carpal tunnel release using the SX-One MicroKnife®. Where did you perform the cases and what did you use for anesthesia?

We basically started with the same procedural set-up that I had been using for my endoscopic carpal tunnel releases. We did the first few cases in the traditional operating room at the ambulatory surgery center using local anesthesia and sedation.

Q. What do you remember most about those first few cases?

Once again, I was amazed at how I could see all of the anatomy that I had never seen before during my endoscopic carpal tunnel releases. The other interesting thing about the procedure is that it's so simple. It is so

"...I was amazed at how I could see all the anatomy that I had never seen before during my endoscopic carpal tunnel releases."

minimally invasive. You see the knife passing through the ligament and your asking yourself "Is this actually going to work?" I always call my patients within 48 hours after surgery and it was great to hear how well people were doing. This was the key.

Q. Now that you have performed over 50 cases, how has the procedure evolved for you over time?

After our first 10 cases, we started using less sedation and eventually transitioned to local anesthesia only. We've also moved out of the traditional OR and into more of a procedural room setting. I can't imagine

doing it any other way at this point. For me, there is a real sense of enjoyment that the patients are able to undergo this surgery with such incredible comfort. It's been a lot of fun.

Q. How long does it take for you to do the procedure?

The first few cases probably took around 15 minutes, occasionally 20 minutes. Now it takes me about 5 minutes, depending on the patient's specific anatomy.

Q. Let's talk more about the patient experience. How do patients tolerate the procedure?

Most of my patients are surprised at how easy it is to have the procedure because they're expecting to feel the discomfort they usually associate with a surgical procedure. However, once I've injected them with the local anesthetic, there are no real issues from there on out. When I'm done less than 10 minutes later, they can't believe it. Some of my patients have even started laughing because they couldn't believe I was done

"Some of my patients have even started laughing because they couldn't believe I was done."

Q. What happens the first few days after the surgery?

Patients can start immediate motion and most take only Ibuprofen or acetaminophen for soreness. The incision is so small I close it with an adhesive bandage so the patient doesn't have to worry about dealing with sutures.

"Patients can start immediate motion and most take only Ibuprofen or acetaminophen for soreness. "

Q. Tell us about postoperative recovery with micro-invasive carpal tunnel release.

Recovery is different than what we experienced with endoscopic patients. When I would talk to patients

about an endoscopic carpal tunnel release I always told them to expect that they would be sore for about three months. Some definitely recovered more quickly (closer to 6 weeks) but on average it is pretty close to three months. This has also been borne out in the literature.

My micro-invasive carpal tunnel release patients get better faster. I tell them that in most cases they should be virtually symptom-free by about six weeks. However, most have resumed normal function by two weeks, and some of them are quite vigorous in the things that they're doing. They're playing sports. They're lifting weights. They're going back to work.

"... most have resumed normal function by two weeks, and some of them are quite vigorous in the things that they're doing."

Q. Now that you've done over 50 cases, how would you characterize the patient experience with micro-invasive carpal tunnel release using the SX-One MicroKnife® compared to traditional open or endoscopic carpal tunnel release?

The procedure removes the intimidation factor. Many patients are hesitant to have surgery. They are intimidated by the prospects of the surgical incision and the pain associated with it. They are intimidated by the traditional operating room environment and all the "stuff" that goes along with it. They are fearful of a prolonged recovery, post-operative pain, and significant activity restrictions. Consequently, many choose to suffer rather than get their carpal tunnel syndrome definitively treated.

"... Ultrasound guided, micro-invasive carpal tunnel release using the SX-One MicroKnife® removes the intimidation factor for patients."

"... it's totally different patient experience. "

Ultrasound guided, micro-invasive carpal tunnel release using the SX-One MicroKnife® removes the intimidation factor for patients. They are blown away by the prospects of a successful procedure that can conveniently be performed outside of the operating room through a small incision with minimal discomfort and a rapid recovery. Like I said, it's totally different patient experience.

Q. What would you like to tell a colleague who performs endoscopic carpal tunnel surgery and is interested in learning the procedure?

Our biggest surprise is that the micro-invasive carpal tunnel release patients got better faster than the endoscopic patients. That's something I was not expecting. When I started this journey I had not expected that my patients would do better than those I had treated with endoscopic carpal tunnel release. And while my experience is anecdotal, based on the thousands of endoscopic carpal tunnel releases I have done, the micro-invasive patients that I've treated with the SX-One MicroKnife® generally do better faster than my endoscopic patients.

Q. What would you tell other surgeons about learning micro-invasive carpal tunnel release?

I tell them that they've been doing this exact procedure over and over again hundreds of times. The only thing that's going to change is how you're visualizing things (ultrasound versus the endoscopic camera) and what you are visualizing. You can see more with ultrasound guidance than with an endoscope. Once you get used to that the technique is essentially the same. The placement and manipulation of the device is the same and the knife deploys the same way. It's got the same feel to it. For hand surgeons, particularly endoscopic

“You can see more with ultrasound guidance than with an endoscope.”

“...For hand surgeons, particularly endoscopic surgeons, once you get used to the ultrasound-guidance aspect, I don't think you'll do another endoscopic carpal tunnel release again.”

surgeons, once you get used to the ultrasound-guidance aspect, I don't think you'll do another endoscopic carpal tunnel release again.

Q. One last question. Why should a physician get trained to perform ultrasound-guided micro-invasive carpal release using the SX-One MicroKnife®?

In my opinion, micro-invasive carpal tunnel release is about patient satisfaction; and it's a global patient satisfaction. Micro-invasive carpal tunnel release is a quantum leap with respect to what you're doing for your patients with carpal tunnel syndrome. From the

“Micro-invasive carpal tunnel release is a quantum leap with respect to what you're doing for your patients with carpal tunnel syndrome.”

minute they're considering the procedure until they are done, it's an improvement. Any time you can make a procedure less intimidating, as long as you can provide the same or better efficacy for that procedure, that's a real upgrade in patient care.

Q. Any final comments?

I believe that ultrasound-guided, micro-invasive carpal tunnel release using the SX-One MicroKnife® will completely change the way we treat carpal tunnel syndrome. This user-friendly device will allow us to efficiently move the procedure from the operating room setting to the office while at the same time providing symptom relief and an expedited post-operative recovery.

“This user-friendly device will allow us to efficiently move the procedure from the operating room setting to the office while at the same time providing symptom relief and an expedited post-operative recovery.”

