



Clinical Notes

Joseph C. McGinley, MD, PhD: A Unique Non-surgical MSK Clinic in Casper, WY

September 30, 2017—For a prime example of how private practice feeds innovation in radiology, look to the experience of MSK radiologist Joseph C. McGinley, MD, PhD, at Casper Medical Imaging in Casper Wyo. Could a world-renowned nonsurgical MSK clinic run by a radiology practice in rural America have evolved in any other setting? Here's that story.

McGinley's path to MSK radiology began with undergraduate studies in mechanical engineering and biomechanics. He maintained his interest in the study of and research into the musculoskeletal system and orthopedic injuries through medical school, and into a radiology residency and fellowship in MSK radiology at Stanford, in California.



When he began interviewing at universities and private practices across the country in 2010, an opening in Casper, Wyo., caught his eye. He and his wife, two former Philadelphians living in California, had passed through on their way to the Midwest and took note of the beautiful outdoor landscapes, the rivers, mountains, and lakes. Tired of big city traffic and congestion, they flew out to meet with the practice.

McGinley was impressed with the town and the medical community. "In towns like this, everyone has to cooperate,

get along, and work toward the successful treatment of the patient,” he notes. “I also had a really good feeling about the radiology community—all of the technology was on the high end, equipment we either had at Stanford or actually didn’t even have yet was out here in this community practice in Central Wyoming. I really liked that this was a progressive practice, and they were looking to serve the best needs of the patient.”

Casper Medical Imaging offered McGinley a position that week, and he canceled the rest of his interviews. “It’s probably been one of the best career decisions I’ve made,” he said. “We love it out here, it’s a great community and a great medical practice.”

A Unique Approach

McGinley arrived at Casper Medical Imaging as the practice’s first MSK radiologist intent on developing a new service line. Straight out of fellowship, he had experience with the latest MSK interventions unfamiliar to many of the local orthopedists, so they began to send him patients for joint and tendon injections.

“I started to see that for a lot of these patients, I actually had other options for addressing their problems,” McGinley says, “but because they weren’t my patients, I couldn’t really address that concern.” Here and there, however, McGinley—an avid outdoor sports enthusiast who has participated in five Cowboy Tough races since moving to Casper—would encounter someone in the community with an orthopedic issue, offer to see them, and if he couldn’t help, refer them to an orthopedic surgeon.



Within a year or two, he had developed a steady stream of patient referrals. From there, he developed a personal, clinical process that he attributes to his

undergraduate education in mechanical engineering and biomechanics.

“In my clinical practice, I try to understand the patient’s underlying core problem and then address that problem,” McGinley explains. “By addressing that problem, you’ll ultimately address the patient’s symptoms. Traditionally in medicine, you are taught to recognize symptoms and come up with a diagnosis.”

Observing that the minimally invasive interventions were improving patients’ quality of life without the need for surgery, he began to talk with family doctors and orthopedic surgeons, explaining that he was starting a clinic within the radiology group with the goal of assessing the patient in a timely manner.

“The unique thing we have in our practice is the ability to see the patients, get any imaging studies at that point in time, and provide the interventional procedure, all in the same visit,” McGinley says, saving the patient time and money. “This was offering a very unique, very efficient workup, and hopefully, in a lot of patients, a positive clinical outcome in a very timely and cost-effective manner. That’s how it started.”

He proposed the idea of starting a clinic one day a week to his partners and instead of pointing out that McGinley was an MSK radiologist and that’s where the money was to be made, they supported it. “I have great partners” McGinley notes. “They were understanding and saw the vision. They trusted that this was going to happen.”

Problem Solving, Botox®, Patents

With the support of the practice, McGinley embarked on a clinical journey that would allow him to use all of the radiological tools and what felt like “100 years of education” to analyze, diagnose, and engineer solutions to the problems his patients brought him. No one could have predicted that the clinic would put Casper on the international map.

One day, McGinley was giving a presentation in town at a CME event on vascular compression syndrome, or artery entrapment. A physician in the crowd thought the symptoms he described sounded just like those experienced by the star soccer player on his daughter's high school soccer team, but no one had called it that. McGinley suggested sending her into the clinic.

The patient was 16 at the time, suffered debilitating calf pain with exercise, and had been diagnosed with exertional compartment syndrome. Her family had spent two years trying conservative treatments in the hope that she could avoid a surgery to which they had finally resigned themselves. She was scheduled for surgery one month after the day she visited Casper's clinic.

The technologist happened to scan up a little higher than McGinley usually looks for artery entrapment, and he noticed that the first two images showed focal compression of her vein, but only when she was pressing with dynamic maneuvers. There was nothing in the literature about functional venous compression related to exertional compartment syndrome, and McGinley was uncertain whether it was significant or not. He told her that from an engineering standpoint, this could theoretically cause the symptoms she was describing.

He brought her into the office, compressed on her vein with an ultrasound where her muscles were functionally compressed, and was able to replicate her symptoms. The muscle that was compressing had a single nerve feeding it, so McGinley performed a nerve block on that muscle to see if the symptoms temporarily resolved, and they did.

A repeat CT scan showed that there was no compression of the vein and no matter how hard she pressed, she was not able to develop the symptoms again, proof of McGinley's theory, but not a treatment.

He sent the patient home but kept returning to the problem: How could he get the muscle to function in a way that was ideal for the patient's vascular flow, but wouldn't impinge on her ability to exercise and compete at sports?

McGinley came upon botulinum toxin, botox for short, to temporarily paralyze the muscle. "I called the patient's mother and I said, 'I have a good idea, don't hang up on me, hear me out. I think we can treat your daughter by focally compressing the muscle with a small amount of botox where it is compressing the vein.'"

The procedure was scheduled and the botox took two weeks to kick in, but when it did, her symptoms completely resolved. The patient was able to finish her soccer season, was named the state Gatorade athlete of the year, went on to do a half marathon in the Bighorn mountains in under two hours, and won state championships in Nordic skiing.

National Media Coverage

McGinley has since treated more than 400 patients from around the world—including Olympic athletes, professional soccer players, and competitive runners— for a syndrome that typically required a very invasive surgery.

He was featured in the March 2017 issue of *Runner's World* and has been interviewed on several major television networks, adding up to millions of dollars of free advertising. Dr McGinley was able to secure several patents on the procedure.

"It was really rewarding to do that," McGinley recalls. "I take the same approach with all of my patients in clinical practice, whether it is straightforward arthritis in an 80-year-old or a young 16-year-old with a weird vascular compression."

The practice has benefitted in multiple ways. "Number one is the positive reflection on our practice as a whole because we were now seeing patients and creating less costly less

invasive treatments and positive outcomes,” he begins. “Word of mouth among our patients and our community helped elevate our practice as a whole. It also helped to solidify a lot of our referring physicians and referral patterns. Not only did I start getting referrals to my clinic, but we also started getting increased referrals for routine imaging studies, so there was a secondary, collateral effect.”

McGinley believes that radiologists are uniquely capable of changing how the practice of medicine occurs. “We have the high-tech imaging, we have the ability to have precise diagnoses, and we learn about the differential diagnoses on innumerable problems in a lot of areas, not just in musculoskeletal radiology,” he says. “I think there are several other opportunities in radiology for the radiologists that want to take that next step and develop a clinical practice.”

The private practice setting was instrumental in the evolution of his unique nonsurgical MSK clinic, McGinley adds. “I definitely could not have done this at any university practice, and probably wouldn’t have been able to pull off what I’ve been able to do here in most private practices. Sometimes things just come together for a reason.”

For more information about Dr. McGinley, visit his website, www.mcginleyinnovations.com.