The SI joint’s purpose might be providing shock absorption during walking or flexibility in childbirth, Patel said, but adds, “We don’t know why it’s not fused.”

Until recently, those with SI joint problems had few options beyond physical therapy or invasive, risky surgery. Now, thanks to a device approved by the Food and Drug Administration (FDA) and the expertise of Patel and his Spine Center colleagues, UCH patients can find relief through a minimally invasive procedure that stabilizes troublesome SI joints, and with far fewer complications than possible even a few years ago.

Fuse it. The procedure hinges on a medical device that looks at first glance like something you might find in a hardware drawer at Home Depot. In fact, it’s an exactly engineered iFuse Implant by San Jose, Calif.-based SI Bone, Inc. The FDA approved it in November 2008 to treat patients with SI joint problems. The implants function at first as spacers to stop slippage of the SI joint; over time, bone grows into the implants’ porous surfaces, in effect cementing the troublesome joint together.

SI joint-related pain is surprisingly common. SI Bone cites research estimating the SI joint to be the culprit in up to 22 percent of lower back pain cases. The causes can be congenital, the result of falls, ligament disorders, or long-term fallout from surgeries such as lumbar fusion (where the reduction in lower-back flexibility puts additional stress on the SI joint), Patel said.

Despite its prevalence, SI joint pain was long neglected as a possible cause of back pain, Patel said.

“We as physicians didn’t believe in it, or considered it something that could only be treated with physical therapy,” explained Patel.
In addition, traditional open surgery came with high risks, slow recovery, and limited likelihood of success, he added.

Tough to nail down. Conspiring, too, was that SI joint pain was – and remains – hard to diagnose. Neither physical examinations nor diagnostic imaging such as MRI or CT scans deliver smoking-gun proof that the joint is indeed the source of pain. It takes a UCH Spine Center physical medicine and rehabilitation expert to work through the various potential causes of a patient’s pain. If the SI joint is suspected as the problem, providers inject it with a local painkiller using X-ray guidance, Patel said.

“If the pain goes away temporarily, that’s diagnostically a positive test,” Patel said.

However, there’s no rush to the OR. Only about one in ten Spine Center patients ends up in surgery, said Michael Torpey, the hospital’s practice manager for the Spine Center and Rehabilitation Medicine. Those who get surgery do so only after discussions between the center’s surgical and nonsurgical spine experts, who work in close collaboration and bounce ideas off each other, Torpey said.

In the case of SI joint surgery, Patel said he was initially dubious of the iFuse Implant. But he tracked patients with serious SI joint problems and, not long after the device’s FDA approval, performed the minimally invasive procedure to insert the implants on three patients with the worst pain. He then monitored them for 18 months. The patients got better. Satisfied, Patel performed the procedure more often and “patients seemed to come out of the woodwork,” as he put it. Now he typically does two SI-joint fusions a month, he said.

Insurers are now on board, Torpey said. On July 1, the American Medical Association approved an insurance billing code for minimally invasive SI joint surgery, he said.

Video game. It’s not an easy surgery, Patel said. The SI joint is deep in the body. It is ensconced in thick muscles and flirts with major blood vessels and nerves. Yet he can do the procedure through a two-inch incision. A 3D surgical imaging system and computer-based surgical navigation system, guided by a radiology technician, provides the visuals; Patel watches his own surgical work on a flat screen monitor.

“It’s almost like a video game to guide our instruments into the pelvis,” Patel said.

Metal implants are nothing new in orthopedics. What’s changed – and continues to evolve – is that supporting imaging and surgical techniques, combined with the right expertise, can embed implants with much less collateral harm.

“It’s a trend in orthopedics, spine, and in all surgical specialties,” Patel said. “In cardiology, it’s endovascular versus open, cardiac stents instead of bypasses. All of these treatments are part of a trend to treat patients with less damage.”
Further Probes of the SI

Vikas Patel is also running two clinical trials related to SI joint surgery. One looks at the correlation between a patient’s actual performance in physical therapy and the patient’s responses to a questionnaire regarding his or her perceived performance. The second compares outcomes of surgical and nonsurgical treatments, such as physical therapy, injections and radiofrequency ablation, Patel said.