Stabilization of the sacroiliac joint with the SI-Bone surgical technique

FRED GEISLER, M.D.

Swedish Covenant Hospital, Neurosurgery, Chicago, Illinois

Although the motion of the sacroiliac joints (SIJ) is minimal, pain can originate from the SIJ on mechanical loading and affect walking, sitting and sleep patterns. The SIJ refers to the pair of joints inferior to the L5-S1 joint, and functions as the inferior adjacent level after a L5-S1 fusion.

SIJ pain has a clinical overlay of symptoms often similar to low back pain (LBP) generated by the lumbar spine. The differential diagnosis in any patient with LBP should include the triad of low back, SIJ, and hip. SIJ pain is also a known cause of residual LBP after successful lumbar fusion. Relief of the patient’s pain with a diagnostic SIJ block verifies the SIJ as the site of the pain generator.

The SI-bone technique of stabilization of the SIJ is a true minimally invasive surgical technique performed through an initial small skin incision and then over pins, with the aid of fluoroscopy in three orthogonal axes with one axis parallel to the posterior sacral cortical line at the S1 to S2 region.

The fluoroscopy procedure includes the following steps: 1) pre-op plan of the desired 3 implant trajectories to account for the anatomic variations; 2) placement of 3 Steinman pins at these trajectories across the SIJ starting in a small skin incision; 3) drill, broach and then implant placement as a cannulated system. All these steps are performed with the assistance of fluoroscopy in all three imaging planes – lateral, inlet and outlet views. The SI-Bone implants are triangular shaped titanium and have a rough surface for immediate stability. This rough surface is believed to aid in the osteo-fixation of the implants to the ilium and sacrum, as well as to long term fusion of the SIJ after its prolonged immobilization.

The video can be found here: http://youtu.be/2YtFddohZRk.
(http://thejns.org/doi/abs/10.3171/2013.V2.FOCUS13195)

KEY WORDS  •  SIJ  •  sacroiliac joint  •  bony fixation  •  LBP differential diagnosis  •  minimally invasive spinal surgery  •  cannulated implant  •  sacroiliac joint fusion  •  video

See the corresponding editorial, DOI: 10.3171/2013.V2.FOCUS13273.