Is minimally invasive sacroiliac joint (SIJ) fusion is effective for SIJ dysfunction?

M. Burhan Janjua, MD¹, Sumanth Reddy, BS¹, Steven Hwang, MD², William C. Welch, MD⁴, Peter G. Passias, MD³

Division of Pediatric Neurosurgery¹, Department of Pediatric Spine and Neurosurgery²
  Department of Orthopedic Surgery³

UT Southwestern Medical Center, Dallas¹
  Shriner Hospital for Children Philadelphia²
  NYU Langone Medical Center, Ny³
  University of Pennsylvania Hospital, Philadelphia⁴
Disclosures

- Peter Passias: (Globus Medical)
- William C Welch: (DePuy Synthes, Castellvi Spine)
Background

• Among causes of low back pain, sacroiliac joint pain has historically been neglected in terms of understanding, diagnosis, and available treatment options

• Sacroiliac joint dysfunction is a significant source of disability and functional impairment in elderly, and research suggests that the impact on quality of life may be comparable to other surgically treated conditions, including lumbar spinal disease and hip osteoarthritis (1,2)

• Furthermore, several studies have determined that lumbar/lumbosacral fusion is associated with the development of sacroiliac joint dysfunction (3-5). Recent scientific and technical advances have increased our collective understanding of sacroiliac joint dysfunction and inspired new efforts to define optimal treatment approaches
Objective

- Sacroiliac (SI) joint can produce debilitating lower back pain with radiation to groin, buttocks, and lower extremities

- Studies entailing surgical arthrodesis utilizing Titanium implants have been reported with reputedly high level of patient satisfaction

- Authors discuss the described technical aspects of surgical technique with use of titanium triangular implants
Methods

• Patients who underwent the minimally invasive operation had significant improvements in low back pain (visual analog scale) and back dysfunction (Oswestry Disability Index) compared to the 51 patients who underwent conservative management with 6 months of physical therapy.

• Other adjunctive measures of pain and function at the two year follow up:

  - This included lower rates of opioid use, improvement in functional outcome measures such as walking distance and work status, and improvements in quality of life in the SIJ arthrodesis group compared to the conservative management group.

• However, patients who had undergone a spinal operation within 12 months of the screening evaluation were excluded.
Results

• Over one-third of patients in this study had a history of prior lumbar arthrodesis, which is consistent with the notion that lumbar/lumbosacral fusion is a risk factor for the development of sacroiliac joint dysfunction.

• Half of the patients in the conservative management group (43%) crossed over to the sacroiliac joint arthrodesis group, with comparable levels of improvement to the patients who were originally assigned to the operation.
Results

• Patients in the conservative management group who did show clinical improvement in low back pain started showing improvement “as early as the first three months.”

• In contrast, patients who crossed over to sacroiliac joint arthrodesis “had almost no mean improvement in pain and the ODI by 6 months”

• Unavoidable complications listed were low back due to the disc herniation, or lumbar facet arthropathy, hip pain due to trochanteric bursitis, and recurrent SIJ pain or contralateral SIJ degenerative arthritis
Conclusions

• Triangular-implant use for SI joint arthrodesis is a well tolerated minimally invasive surgical procedure

• Care has to be taken to avoid excessive manipulation through the gluteal musculature

• Violation of the sacral canal or the sacral hiatus should be avoided which could result in neural impingement
Conclusions

• These avoidable complications are related to the study device or the procedure like gluteal muscle hematoma or nerve impingement or hardware loosening.

• Hardware loosening mandates removal and requires SIJ arthrodesis with long iliac screws through the posterior approach is a feasible minimally invasive procedure for corpus callosotomy.