Sacroiliac joint arthrodesis

Dengler et al., compared the safety and effectiveness of minimally invasive sacroiliac joint arthrodesis using triangular titanium implants and conservative management in patients with chronic sacroiliac joint pain.

This study was a prospective, multicenter randomized controlled trial of adults with chronic sacroiliac joint syndrome assigned to either conservative treatment or sacroiliac joint arthrodesis with triangular titanium implants. The study end points included self-rated low back pain (visual analog scale [VAS]), back dysfunction (Oswestry Disability Index [ODI]), and quality of life. Ninety percent of subjects in both groups completed the study.

Between June 6, 2013, and May 15, 2015, 103 subjects were randomly assigned to conservative management (n = 51) or sacroiliac joint arthrodesis (n = 52). At 2 years, the mean low back pain improved by 45 points (95% confidence interval [CI], 37 to 54 points) after sacroiliac joint arthrodesis and 11 points (95% CI, 2 to 20 points) after conservative management, with a mean difference between groups of 34 points ($p < 0.0001$). The mean ODI improved by 26 points (95% CI, 21 to 32 points) after sacroiliac joint arthrodesis and 8 points (95% CI, 2 to 14 points) after conservative management, with a mean difference between groups of 18 points ($p < 0.0001$). Parallel improvements were seen in quality of life. In the sacroiliac joint arthrodesis group, the prevalence of opioid use decreased from 56% at baseline to 33% at 2 years ($p = 0.009$), and no significant change was observed in the conservative management group (47.1% at baseline and 45.7% at 2 years). Subjects in the conservative management group, after crossover to the surgical procedure, showed improvements in all measures similar to those originally assigned to sacroiliac joint arthrodesis. In the first 6 months, the frequency of adverse events did not differ between groups ($p = 0.664$). By month 24, we observed 39 severe adverse events after sacroiliac joint arthrodesis, including 2 cases of sacroiliac joint pain, 1 case of a postoperative gluteal hematoma, and 1 case of postoperative nerve impingement. The analysis of computed tomographic (CT) imaging at 12 months after sacroiliac joint arthrodesis showed radiolucencies adjacent to 8 implants (4.0% of all implants).

For patients with chronic sacroiliac joint pain due to joint degeneration or disruption, minimally invasive sacroiliac joint arthrodesis with triangular titanium implants was safe and more effective throughout 2 years in improving pain, disability, and quality of life compared with conservative management [1].

Rajpal and Burneikiene retrospectively reviewed 24 patients who underwent SIJ fusions between May 2015 and October 2017 performed by a single surgeon.

Mean total satisfaction score was 89.0% ± 27.6%. A statistically significant reduction ($P = 0.0028$) in low back pain scores was noted from an average baseline score of 6.6 ± 2.4 to 3.7 ± 3.3 postoperatively. Leg pain scores decreased from 4.8 ± 3.8 to 1.5 ± 2.9 ($P = 0.0034$). Mean surgical time was 53.0 ± 13.9 minutes. It took significantly longer ($P = 0.0089$) to perform the initial 13 cases (59.9 ± 15.2 minutes) compared with subsequent cases (45.4 ± 7.3 minutes). Estimated blood loss was minimal (10.4 ± 5.2 mL).

Minimally invasive SI joint fusion using cylindrical threaded implants can be safely performed with minimal morbidity and good clinical outcomes [2].

1)
Dengler J, Kools D, Pflugmacher R, Gasbarrini A, Prestamburgo D, Gaetani P, Cher D, Van Eeckhoven E, Annertz M, Sturesson B. Randomized Trial of Sacroiliac Joint Arthrodesis Compared with Conservative Management for Chronic Low Back Pain Attributed to the Sacroiliac Joint. J Bone Joint Surg Am. 2019 Mar 6;101(5):400-411. doi: 10.2106/JBJS.18.00022. PubMed PMID: 30845034.
2)
Rajpal S, Burneikiene S. Minimally Invasive Sacroiliac Joint Fusion with Cylindrical Threaded Implants Using Intraoperative Stereotactic Navigation. World Neurosurg. 2019 Feb;122:e1588-e1591. doi: 10.1016/j.wneu.2018.11.116. Epub 2018 Nov 23. PubMed PMID: 30476656.