

Sacro-Iliac Fusion Rates Using a Novel MIS System

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Purpose

Minimally Invasive Sacro-iliac Joint (MIS SIJ) Fusion is gaining acceptance as a preferred method of fusing the joint when treating patients with SIJ pain. To date, there is data demonstrating the clinical efficacy of the procedure but fusion data is lacking. Given the theory that improved long term outcomes are anticipated with a solid fusion versus pseudoarthrosis, a study examining fusion rates is important.

Methods

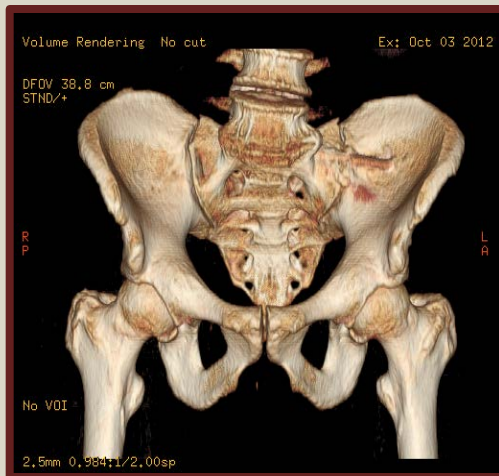
A single surgeon consecutive case series of 10 MIS SIJ Fusions with at least 12 months of follow-up was reviewed with thin (2.5mm) cut CT scan to assess rates of fusion. Axial images, as well as coronal and sagittal reconstruction views were assessed. All series must show evidence of bridging bone anteriorly or within the joint itself on a minimum of 3 cuts to be considered fused. CT scans were obtained at 6 and 12 months post-surgery. Given the radiation exposure and the trend of incomplete fusion noted at 6 months, only the first 7 cases had CT scans performed at that time.

Results

6 months CT scan:
1/7 fused
(95% confidence interval 0.4%, 52.1%)
6 others with early signs of fusion.

12 months CT scan:
9/10 fused
(95% confidence interval 55.5%, 99.7%).

There was a statistical difference between fusion rates at 6 and 12 months ($P=0.001$). No patient showed evidence of implant loosening on any of the scans.



Conclusions

12 month results indicate an acceptable fusion rate of 90% as measured on thin cut CT scan. 6 month images, while indicative of progression towards fusion, did not demonstrate a satisfactory fusion rate. While greater cohort size will enhance the data, we believe early cases demonstrate a statistically good fusion rate. Additionally, we would recommend avoiding routine CT scan assessment of MIS SIJ Fusion patients prior to 12 months.