

## Are osteoarthrotic changes of the Sacroiliac Joint to be seen as Adjacent Segment degeneration after lumbosacral Fusion?

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### Introduction

Adjacent segment degeneration (ASD) after spondylodesis is the most important problem of spinal fusions. This study investigates the operation of caudal ASD after lumbar fusions in comparison to the indication of arthrodesis of the sacroiliac joint (SIJ) within the same period.

### Patients and method

In the 4 years between 3/2010 and 2/2014 274 stabilizing operations of lumbar/lumbosacral segments were performed, in the same period 61 fusions of the SIJ were done. We investigated the indications for SIJ-fusion in these patients, the relation of caudal ASD-fusion to the indication for SIJ-fusion within this period, the number of fusions because of caudal ASD compared to that of SIJ-fusions and made a comparison between the length of spondylodesis down to the sacrum (3 or more against 1-2 segments) between SIJ-fused patients and those fused to S1 without developing severe SIJ-symptoms.

### Results

Indications for SI-fusion were: 29 patients (49%) with previous lumbar spine fusion down to S1 (1-8 segments, av. 3 segments, 14 cases 3 or more segments), in 11 patients (18%) a lumbar spine fusion without the segment L5/S1 had been performed, both 1 case (each 2%) a spinal arthroplasty L5/S1 and a sacral fracture was a former incident, in 4 cases (7%) degenerative disc disease with degenerativeolisthesis L5/S1; in 3 patients (5%) a lumbar decompression in case of severe degenerative changes had been performed earlier, in further 5% pathologic hip changes could be seen. Only 7 cases (12%) showed no possible cause of SIJ-degeneration and can be regarded as "idiopathic".

A fusion of the contralateral SIJ had to be performed in only 3 patients (5%), interestingly all these 3 cases after lumbar fusion down to S1.

Within the same period 27 fusions because of caudal ASD were performed (10% of 274), compared to the 29 cases of operated SIJ-degeneration after spondylodesis down to the sacrum (10,6%).

In comparison of the 77/274 lumbar fusions to S1 without fusion-worth SIJ-degeneration we saw only 35% of these fusions with 3 or more segments against 48% of the fusions to the sacrum with following SIJ-arthrodesis.

### Conclusion

This study of indications for and number of SIJ-fusions compared to the number of caudal adjacent disc disease in the same period of the total group of 274 lumbar spine fusions within this time shows a very comparable percentage of both operations (10,6% of SIJ-fusions after lumbar spondylodesis down to S1, 10% of fusions of the caudal segment because of ASD). There is also a tendency of higher danger of severe SIJ-pain in fusions of 3 or more segments until S1.

Therefore one can assume, that the symptomatic osteoarthritis of the SIJ in a high percentage can be regarded as caudal ASD after fusion of L5/S1. Hip diseases seem to play only a minor role in the origin of SI-degeneration (5%), idiopathic changes are rare too (12%).