Lumbar facet joint effusion on MRI: a sign of instability in degenerative spondylolisthesis?

Summary / Zusammenfassung

Introduction

The term “segmental instability” of the lumbar spine is not clearly defined, even for degenerative spondylolisthesis (DS). This makes it difficult to compare outcomes after different types of surgical treatment. Facet joint effusion observed on supine MRI was investigated as a possible sign of instability in DS and rotational translation (RT).

Patients and Methods

Patients that had undergone decompression only or decompression with instrumented fusion for DS with different degrees of narrowing of the spinal canal, were identified retrospectively from our spine surgery database, part of the SSE Spine Tango Registry. All had preoperative upright ap and lateral x-rays as well as supine MRI. The imaging studies were assessed for the following parameters: percent of slippage, absolute value of facet joint effusion (separately on right and left sides), facet angles, degree of facet degeneration and spinal canal narrowing, disc height, presence of RT in the ap x-ray and the presence of facet cysts.

Results

160 patients fulfilled all admission criteria (119 female, 41 male, mean age 68.8 years, range 38.8 to 89.3 years). 40 patients showed no facet joint effusion, and in these the percentage slip difference between x-ray and MRI was ≤ 3%. A further 12 patients also showed a difference ≤ 3%, but showed some fluid in the joints (0.44±0.38 mm). In 108 patients, the relative slippage difference between x-ray/MRI was > 3% (mean 10.6%, range, 4 to 29%) and was associated with a mean facet effusion size of 2.15±0.85 mm. The extent of effusion correlated significantly with the relative slippage difference between x-ray/MRI (r=0.82, p=0.0001), and the extent of the right/left difference in effusion was associated with the presence of RT (RT, 1.31 ± 0.8 mm versus no-RT, 0.23 ± 0.17 mm; p<0.0001).

Conclusion

Facet joint effusion is clearly correlated with spontaneous reduction of the extent of slippage in the supine position compared to the upright position. The greater the difference in right and left facet effusion, the higher the likelihood of having RT instability.

Publications / Publikationen


Lattig F, Fekete T, Grob D, Mannion AF. Lumbar facet joint effusion sign on MRI in degenerative spondylolisthesis: should it influence the treatment decision? Eurospine, the Spine Society of Europe, Vienna, Austria, 15-17.9.2010


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Project Leadership and Contacts / Projektleitung und Kontakte
Dr Friederike Lattig (Project Leader)
PD Dr Anne Mannion, PhD (Project Leader)  anne.mannion@kws.ch

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