

“Correlation between symptoms and findings during axial loaded MRI of the lumbar spine in patients with neurogenic claudication or sciatica”

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Abstract

Purpose

The purpose was to evaluate the correlation between the findings at supine lumbar MRI with and without axial loading and the patient's experienced pain level and pain distribution.

Method and materials

14 patients, mean age 52, were referred to axial loaded MRI. All patients were first examined in routine lumbar spine MR and immediately afterwards underwent supine axial loaded MRI with a compression device. The level of pain at normal daily life and during the axial loaded lumbar MRI was recorded by the patient on a visual analogue scale (VAS), 0-10. The distribution of pain at normal daily life and during the axial loaded lumbar MRI was marked on a sketch by the patient. The dural cross sectional area and additional findings during axial load such as increasing recess or foraminal stenosis, changing of the shape of the dorsal fat pad, increasing thickness of ligamentum flavum, reduced intervertebral joint height, reduced amount of fluid in the intervertebral joint, fluid beneath the ligamentum flavum at Th12 to S1 were evaluated and compared to the experienced pain level and distribution.

Results

The patients' recorded pain distribution could be explained by the distribution of findings at the axial loaded MRI examination in 11/14 patients. During the loaded MR imaging a mean of 7 additional findings were found. In 6 out of 14 of the patients the experienced pain during the axial loaded examination increased more than 2 increments on the VAS scale. In these patients there was also a mean of 7 findings. In one patient the pain level was unchanged during axial load and a total of 15 additional findings during axial load were recorded. Dural sac areas decreased 0,28 cm² compared to 0,17 cm² for all patients. In another patient the pain level increased 6 increments during axial load and 5 new findings were recorded with a decrease of the dural sac area of 0,15 cm².

Conclusion

Additional findings are detected in supine axial loaded MRI compared to non loaded MRI. The locations of these findings were in accordance with the experienced pain distribution. There was no correlation between the patients' experienced level of pain with the number of additional findings in the axial loaded MRI.