Ligamentum Flavum Thickening at Lumbar Spine Associated with Facet Joint Degeneration: A MRI Study

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Introduction

Degenerative changes in the posterior elements of the spine such as thickening or hypertrophy of the ligamentum flavum (LF) may result with spinal stenosis. The purpose of the present study was to investigate all potential factors (age, intervertebral disc degeneration (IDD), facet joint degeneration (FJD), end plate degeneration (EPD)) that may affect LF thickening together and elucidate the associations between those factors at each level of lumbar spine through evaluation of magnetic resonance images (MRI).

Methods

The present study included 200 individuals who presented complaints of low back and/or leg pain and underwent lumbar MRI. The thickness of LF, FJD, IDD and EPD at all lumbar levels were assessed.

Results

Totally 1000 end plates, 1000 intervertebral discs, and 2000 facet joints were evaluated and the thicknesses of 2000 LF were measured from MRIs of 200 patients (100 males and 100 females). The mean age of the patients was 46.87 ± 12.47 years. LF thickness was strongly associated with FJD, particularly on the ipsilateral side. Age and IDD were correlated at all vertebral levels. The age related changes (LF thickness, FJD, IDD and EPD) were more prominent at L4-L5 vertebral level. However, gender had no effect on LF thickness at any level.

Conclusions

The results of this study suggest that LF thickening may occur independently or accompany FJD, especially on the ipsilateral side and the relationship depends on the vertebral level. The degree of disc degeneration increases with age while the age related changes predominantly occur at L4-L5 vertebral level.

Learning Objectives

In this study ligamentum flavum thickening is mostly related with facet joint.

References