Increased Expression of Matrix Metalloproteinases in Ligamentum Flavum Hypertrophy of the Patients with Lumbar Spinal Stenosis

Betul Eser¹, Olcay Eser², Nejdet Simsek³, Erdogan Bulbul⁴ and Mustafa Guven⁵

¹Department of Medical Genetics, Faculty of Medicine, Balikesir University, 10145 Balikesir, Turkey
E-mail: drbetuleser@gmail.com
²Department of Neurosurgery, Faculty of Medicine, Balikesir University, 10145 Balikesir, Turkey
E-mail: drolcayeser@hotmail.com
³Department of Histology and Embryology, Faculty of Medicine, Balikesir University, 10145 Balikesir, Turkey,
E-mail: nsimsek-58@hotmail.com
⁴Department of Radiology, Faculty of Medicine, Balikesir University, 10145 Balikesir, Turkey
E-mail: drerdoganbulbul@yahoo.com
⁵Department of Neurosurgery, Faculty of Medicine, Canakkale 18 March University, 17020 Canakkale, Turkey
E-mail: guven2340@hotmail.com

KEYWORDS Expression. Ligament. Metalloproteinase. Polymorphism. Stenosis

ABSTRACT This paper shows an investigation of the expressions of MMP-3,-13 and their polymorphisms in patients with lumbar spinal stenosis (LSS). Hypertrophied LF tissues and peripheral bloods were obtained from 50 patients with LSS. The expressions of MMP-3,-13 and their polymorphisms were analyzed. No relationship was found between thickness of LFs and MMP-3,-13 genotypes. LF tissues were divided to three groups as grade 1, 2 and 3. Rich elastic fibrils were observed in grade 1. Elastic fibers and elastin/collagen rates decreased in grade 2-3 and 4, and collagen fibers increased and presented a cystic degeneration. MMP-3 immunopositive cells were higher than MMP-13. A correlation between LF thicknesses and MMP-3 was detected. Both MMP-3, -13 were expressed (MMP-3 in higher quantities) in high grade hypertrophied LF. The researchers expect that this paper would provide a better understanding of the pathogenesis of LF hypertrophy and lead to therapeutic alternatives for LSS patients.