Role of MRI Features as a Prognostic Index in Cervical Spondilogenetic Myelopathy

Savino Iodice; Nicola Zelletta MD; Giulio Cecchini MD; Roberto Gaudio M.D.; Pasquale Cascardi MD; Antonio De Tommasi MD, PhD

Introduction

The importance of a correct pre-operative radiological diagnosis in patients with cervical myelopathy has been widely demonstrated. Indeed, few studies still exist about the correlation between post-operative radiographic and clinical modifications.

Methods

The authors present a prospective study of 54 patients with cervical spondilogenetic myelopathy, which underwent surgery for corpectomy and anterior fusion with mesh in a period between January 2005 and August 2013. Images of cervical RMN were studied pre-and post-operatively and attention has been focused on alterations of intramedullary signal on T1 and T2-weighted sequences. Pre-and post-operative changes were correlated with clinical data (obtained by means of a Nurick scales and Joa classification -modified by Benzel-). In relation to cervical rm-based studies patients were divided into 3 groups: A - no intramedullary signal alteration; B -alterations in T2weighted sequences; C - alterations of the signal in both T1 and T2-weighted sequences

Results

In all patients, decompression of the cervical spinal cord has been demonstrated by extension of the antero-posterior diameter of the spinal canal and by increase in the thickness of the subarachnoid space. In group A patients no intramedullary signal changes were highlighted post-operatively. Patients in group B showed improvement on the base of hyperintensity disappearance on T2-weighted MRI, correlating with an improvement in the clinical quadro. Patients of group C have not been showing changes in the intramedullary MRI signal despite spinal cord decompression.

Conclusions

Signal alterations in T1 are an unfavorable prognostic index and proved to be irreversible. They correlate with a lack of clinical improvement of the patient. Patients in group B are those with the greatest clinical benefit after surgery and in whom clinical improvement correlates clearly with the radiological outcome.

Learning Objectives

Describe the importance of the correlation between post-operative radiographic and clinical modifications.

References