

THE ROLE OF MRI IN THE DIFFERENTIAL DIAGNOSIS OF MYELOPATHIES

Irene Treesa Mathew

Scientific Adviser: Vasile Purcel

Department of Radiology and Imaging, *Nicolae Testemițanu* University

Background. Misdiagnosis in myelopathies is common. It is essential to determine the etiology of myelopathy as soon as possible in order to provide disease-specific treatment and prevent serious neurologic impairments. **The objective of the study.** To analyze the Role of MRI in the differential diagnosis of Myelopathies. **Material and methods.** A systematic review of articles within the period 2018-2023 was conducted using the databases Google Scholar, PubMed, NCBI, and ScienceDirect. **Results.** The preferred method of diagnosis for myelopathy is MRI, which can image soft tissue and bone structures, detect intramedullary signal abnormalities, and assess the degree of spinal canal stenosis and cord compression. An important and frequent indication of myelopathy on MRI is a hyperintense intramedullary signal at T2-weighted imaging. An algorithmic diagnostic approach, which includes clinical assessment, acute versus non-acute

onset, cord expansion, and pattern of T2 SI abnormalities is essential for differential diagnosis. T2-weighted images combined with T1-weighted post-gadolinium images are more effective in improving the accuracy of diagnosis. Diffusion Tensor Imaging is an MRI technique helpful in the early detection of myelopathies, where conventional MRI is normal, with myelopathy symptoms and in convalescence stages of Myelopathy. **Conclusion.** MRI has a crucial role in Myelopathy Diagnosis. An algorithmic diagnostic approach with the identification of specific MRI patterns in different etiologies is important in the differential diagnosis. In addition, the use of T1-weighted post-gadolinium images and modern MRI techniques like DTI may be helpful in improving accuracy. **Keywords:** Myelopathy, MRI in differential diagnosis, DTI, T2 hyperintensity, T1-Gadolinium.