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Demyelinating diseases of the central nervous system (CNS)

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Demyelinating diseases (DD) of the CNS include a broad spectrum of CNS disorders that can be diagnosed relatively routinely in some circumstances, but very challenging in other situations. Clinical course and morphological features of these conditions may be considerable overlapping that can lead to clinical uncertainty and misdiagnoses. DD can be primary – idiopathic inflammatory demyelinating disorders (IIDDs) and secondary – superimposed to other pathological entities. Primary IIDDs include: Multiple sclerosis (MS), clinically isolated syndrome (CIS), neuromyelitis optica (NMO), acute disseminated encephalomyelitis (ADEM), tumefactive demyelinating lesions (TDL), transverse myelitis (TM), chronic inflammatory demyelinating polyneuropathy (CIDP), and Guillian-Barre Syndrome (GBS). The differentiation between them has important implications on their managment and diagnostic road contains clinical, laboratory and neuroradiological findings. In diagnostic complexity of the IIDDs there is an effort to find typical clinical, immunopathogenic and imaging features playing role of biomarkers that could improve accuracy of diagnose. Identification of specific imunopathogenic and neuroradiological profile should enable induvidualized differential diagnosis and tailored treatment in a given patient. MR imaging is incorporated in whole diagnostic criteria and protocols of the managing IIDDs with increasing of its importance over the time, not only in diagnostic aspect, but also researching. In everyday practice, MR is unique diagnostic tool that is helpful in: 1. Distinguishing IIDDs from other pathological entities - (e.g., tumoral or infections lesions) avoiding unnecessary aggressive diagnostic or therapeutic procedures; 2. Differentiation between different type of IIDDs which can provide appropriate therapy - for instance certain patients with NMO may not response well, or even deteriorate under some of the first-line treatment for MS; 3. Prognostic aspect – e.g. contribution to the identification of the patients with CIS or RIS who are at greater risk for disability progression or, on the other hand, will have a more benign course; 4. Understanding tissue changes during progression and remission – while the autopsy and anatomical observations - as a snapshot - do not explain adequately, e.g., the recovery seen in some MS patients, MRI imaging is better to follow the tissue changes caused by demyelination. The lecture is designed as a review of practical pearls and pitfalls of the IIDDs by presenting cases from everyday practice.

Biography

Svjetlana Jefic works as Radiologist at Department of Clinical Radiology, University Clinical Centre of Repablic of Srpska, Banja Luka, Bosnia and Herzegovina. She is general Radiologist with completed training in fluoroscopy, x-ray exams, ultrasound, CT and MRI with focus on cross sectional imaging and with main interest in neuroradiology as well as pathology of head and neck. Also, she had an experience in Family Medicine Practice certified by Queens University, Toronto, Canada and Medical University of Banja Luka. She is trained on numerous radiological and neuroradiological courses (ESOR Galen Foundation courses, 1st, 2nd, 3th Schools of Neuroradiology, MRI Schools of Novi Sad, Sarajevo etc.), published four abstracts (oral presentations and e-posters at Congres of Radiologists of Serbia and 39th Annual Meeting of ESNR), two invited lectures on BCR. Member of ESNR, ESR, Society of Radiology of BiH, Society of Radiology of Serbia.

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