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Tumefactive Multiple Sclerosis: Emerging Role of MR Spectroscopy

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Background: TMS is one of the rare variants of multiple sclerosis comprising of large demyelinating lesions that frequently mimic intracranial neoplasm or abscess even in the setting of established MS. MR spectroscopy (MRS) imaging is an exciting tool to help in the diagnosis.
Methods: Case series
Results: Case 1: A 24-year- old male presented with numbness and electric sensation of the whole body that resolved after steroid pulse therapy. MRI spine and brain showed lesions consistent with MS. CSF analysis was positive for oligoclonal bands. Disease progression continued despite disease modifying therapy and so he was started on ocrelizumab. MRS showed evidence of elevated peaks of choline and lactate with mild reduction of naa consistent with demyelination.
Case 2: A 32- year-old male was seen for lower limb weakness and numbness with progressive gait impairment. He had history of urinary symptoms, imbalance, dizziness, ataxia and excessive fatigue. CSF analysis was normal. MRI brain was consistent with MS along with a left frontal lesion with perilesional edema and faint rim enhancement. Mrs lesion shows elevation of lactate and choline consistent with TMS. NAA was reduced. He was started on cladribine with good response.
Case 3: A 37- year- old female known to have MS, on fingolimod, developed a new relapse. Mri brain showed a left parietal cystic lesion with no contrast enhancement along with other lesions consistent with MS. MRS of the cystic lesion showed low NAA and high choline. Subsequently, she developed few more relapses and so switched to natalizumab with partial control of the disease.
Conclusions: TMS is a unique form of MS and should be considered with care. MR spectroscopy may serve as a helpful diagnostic tool.