Objective:
To evaluate the clinical, radiological and prognostic features of MOG-IgG myelitis and compare it to Aquaporin 4 (AQP4)-IgG and multiple sclerosis (MS) myelitis.

Background: Accumulating evidence has suggested that detection of MOG-IgG defines a clinical syndrome distinct from both MS and AQP4-IgG seropositive NMOSD. Recognition of clinical and radiologic features of MOG-IgG myelitis could allow earlier diagnosis and thereby improve prognostication and treatment decisions.

Design/Methods:
Mayo Clinic patients (2000-2017) with myelitis and seropositivity for MOG-IgG were included. AQP4-IgG myelitis (n=46) and multiple sclerosis (MS) myelitis (n=26) patients were used as a comparative group. Outcome variables included modified Rankin score (mRS) and need for gait aid. MRI features were compared in a blinded fashion by a neuro-radiologist.

Results:
Fifty-four MOG-IgG myelitis patients were included. Isolated transverse myelitis was the initial clinical presentation in 29 (53.5%) and 10 (19%) were initially diagnosed as viral/post-viral acute flaccid myelitis. Certain features favoring MOG-IgG over AQP4-IgG or MS myelitis were T2-signal abnormality confined to gray matter (sagittal line and axial H-sign) and lack of enhancement (p<0.05). Longitudinally-extensive T2-lesions were of similar frequency in MOG-IgG and AQP4-IgG myelitis (80% vs 79%; p=0.52) but not found in MS. More than one spinal cord lesion and conus involvement was more frequent with MOG-IgG than AQP4-IgG but did not differ from MS. Wheelchair dependence at myelitis nadir occurred in a third of MOG-IgG and AQP4-IgG patients but never with MS. However, recovery was better with MOG-IgG than AQP4-IgG patients.

Conclusions: Myelitis is an early manifestation of MOG-IgG related disease and may have a clinical phenotype of acute flaccid myelitis. We identified clinical and MRI attributes that give a clue to MOG-IgG myelitis and help distinguish it from AQP4-IgG and MS myelitis.