1 Patient Information

1 STUDY DETAILS

Name
Carolyn M. Jennings

Date of Study
05/06/2026

DOB / Age / Sex
05/22/1986 | 39F

Referring Provider
Dr. Patrick O. Nguyen, MD — Neurology

MRN
RAD-2026-3318

Interpreting Radiologist
Dr. Lisa A. Hoffman, MD — Neuroradiology

I Clinical Indication

2 REASON FOR STUDY

Evaluation of a 39-year-old female with a 3-month history of episodic right arm numbness and tingling, one episode of transient right eye visual loss lasting 45 minutes (optic neuritis versus TIA), fatigue, and mild balance difficulties. Cerebrospinal fluid analysis pending. Rule out demyelinating disease versus vascular or neoplastic etiology.

T Technique

3 ACQUISITION DETAILS

Body Part / Region Imaged
Brain and cervical spine

Sequences Obtained
Brain: Axial T1, T2, FLAIR, DWI/ADC, gradient echo (GRE/SWI), post-contrast T1 with gadolinium. Sagittal T1 and FLAIR. Coronal T2. Cervical Spine: Sagittal T1, T2, STIR; axial T2 at levels of interest; post-contrast T1 sagittal.

Contrast
Gadolinium contrast administered — Gadavist 0.1 mmol/kg IV (7.2 mL). No adverse reaction.

Patient Positioning / Limitations
Patient cooperative and motionless throughout. Standard supine positioning. No motion degradation. No metallic implants or artifacts.

C Comparison Studies

4 PRIOR IMAGING

No prior MRI of brain or spine available for comparison. Prior CT head (performed in ED 3 months ago): Reported as normal — no available images for direct comparison.

F Findings

5 STRUCTURED IMAGING FINDINGS

BRAIN:

White Matter: Multiple T2/FLAIR hyperintense lesions are identified in the periventricular, juxtacortical, and infratentorial regions. The lesions are ovoid in morphology and predominantly oriented perpendicular to the lateral ventricles on sagittal FLAIR imaging (Dawson's fingers appearance). Total lesion count: approximately 14 discrete lesions.

Periventricular lesions: 6 lesions identified, the largest measuring 1.4 x 0.8 cm in the right periventricular white matter adjacent to the posterior body of the right lateral ventricle. Additional lesions in bilateral posterior periventricular regions, measuring 0.4–0.9 cm.

Juxtacortical lesions: 4 lesions at the cortical-white matter junction, the largest in the right frontal lobe measuring 0.7 x 0.5 cm. Two lesions in the

left parietal region measuring 0.4–0.6 cm.

Infratentorial: 2 lesions in the pons — right dorsolateral pontine lesion (0.5 x 0.4 cm) and a left periventricular fourth ventricle lesion (0.4 cm). 1 lesion in the right middle cerebellar peduncle (0.6 cm).

Contrast Enhancement: Post-gadolinium T1 images demonstrate enhancement of 2 lesions: (1) right periventricular lesion (1.4 cm) with incomplete ring-like enhancement — active/acute lesion. (2) Right juxtacortical frontal lesion with faint nodular enhancement — subacute. Remaining lesions are non-enhancing — consistent with chronic/older lesions.

Optic Nerves: Right optic nerve demonstrates subtle T2 hyperintensity and mild swelling at the retrobulbar segment with faint post-contrast enhancement — consistent with active right optic neuritis.

Grey Matter/Cortex: No cortical atrophy disproportionate to age. No cortical lesions on GRE. No acute cortical diffusion restriction.

Vascular: Major intracranial vessels are patent on MRA sequences. No arterial stenosis, occlusion, or aneurysm. No developmental venous anomaly or cavernous malformation. No evidence of vasculitis.

Ventricles/Cisterns: Ventricles normal in size and configuration. No midline shift. No hydrocephalus.

CERVICAL SPINE:

At C3-C4: A focal T2 hyperintense lesion within the central-right dorsal cervical cord, measuring 0.8 x 0.5 cm, spanning approximately one vertebral body segment. Mild cord swelling at this level. Post-contrast T1 shows faint enhancement.

C5-C6: Subtle T2 signal change in the posterior cord, non-enhancing — possible chronic lesion.

No cord atrophy. No extrinsic cord compression from degenerative disc disease at imaged levels. Vertebral alignment intact.

IM Impression

6 CLINICAL INTERPRETATION

1. MULTIPLE DEMYELINATING LESIONS in periventricular, juxtacortical, infratentorial brain regions, and cervical spinal cord — highly characteristic of multiple sclerosis (MS). The lesion distribution satisfies 2017 McDonald Criteria for dissemination in space (DIS): periventricular, juxtacortical, infratentorial, and spinal cord involvement.

2. GADOLINIUM-ENHANCING LESIONS: Two active enhancing brain lesions (right periventricular and right juxtacortical frontal) plus one active enhancing cervical cord lesion (C3-C4) — indicating dissemination in time (DIT) can be inferred if non-enhancing lesions are present simultaneously (per 2017 McDonald Criteria), which is satisfied.

3. ACTIVE RIGHT OPTIC NEURITIS: Enhancement and swelling of the right retrobulbar optic nerve is consistent with the clinical history of right monocular visual loss.

4. CLINICAL CORRELATION: Findings are highly consistent with relapsing-remitting multiple sclerosis (RRMS). Neurological assessment and CSF analysis (oligoclonal bands, IgG index) are strongly recommended to complete diagnostic workup per McDonald 2017 Criteria.

5. No intracranial neoplasm, hemorrhage, acute infarct, or vascular malformation identified.

R Recommendations & Limitations

7a RECOMMENDATIONS

1. Urgent neurology follow-up for clinical correlation and MS diagnosis confirmation. 2. CSF analysis — oligoclonal bands and IgG index recommended. 3. Visual evoked potentials (VEPs) to confirm right optic neuritis. 4. Disease-modifying therapy (DMT) initiation discussion with neurologist — patient meets likely RRMS criteria. 5. Repeat MRI brain and spine with contrast in 3 months to establish longitudinal disease activity baseline.

7b LIMITATIONS

No prior imaging available for comparison, limiting assessment of lesion chronology. MRI performed without motion artifact. All sequences completed without technical compromise.

PROVIDER NAME	CREDENTIALS	DATE & TIME
Dr. Lisa A. Hoffman, MD — Neuroradiology	MD — Neuroradiology	05/06/2026