

(1).

1
2

2000 3 31 2000 9 14 .

5 - 10% (5, 6). Johnson Richardson (13) 24 80%가
(3, 7, 8). 50% 100 cm
(3), 3
(9). (PET) (SPECT)
가 가
(2, 5, 7, 10 - (cytokine enhanced autoimmunity) 가 (4).
12), 가 62%
T2 (14, 15).
가 (3, 15, 16),
1cm 83%

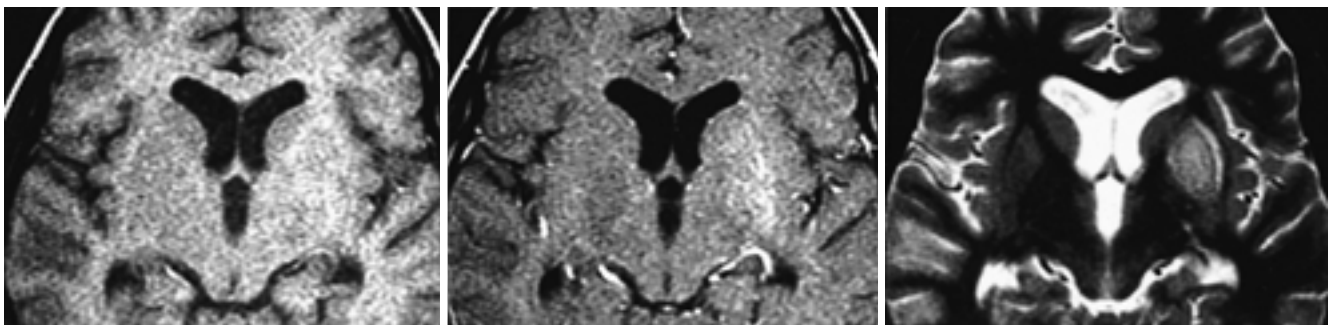


Fig. 2. An 11-year-old man with neuropsychiatric lupus. T1-weighted axial image (A) reveals slightly increased signal intensity in left basal ganglia. Gd-enhanced T1-weighted axial image (B) reveals unilateral enhancement in left basal ganglia. In T2-weighted axial image (C) the diffuse high signal intensity is seen in left basal ganglia.

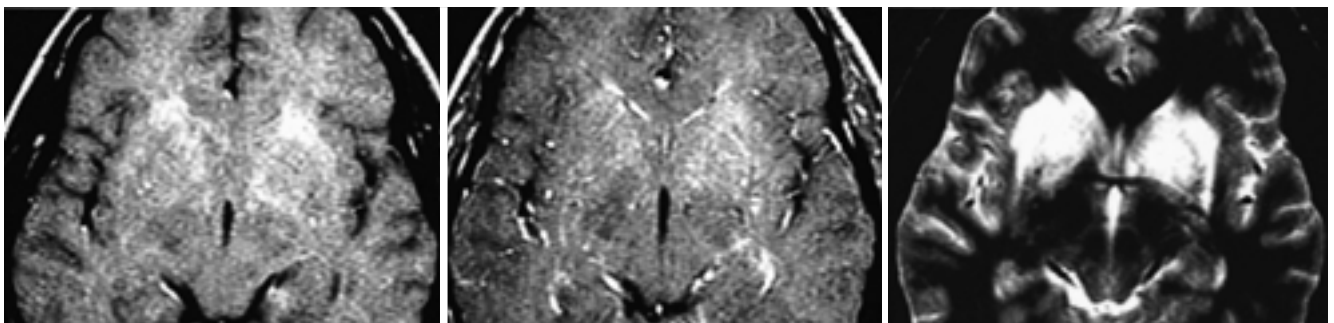


Fig. 3. A 27-year-old woman with neuropsychiatric lupus. T1-weighted axial image (A) reveals ill-defined high signal intensity in both basal ganglia. Gd-enhanced T1-weighted axial image (B) reveals faint enhancement in both basal ganglia and intravascular enhancement. The homogeneous high signal intensities are seen in both basal ganglia on T2-weighted axial image (C).

가 (2), 가
(15, 16). 16
6
10
T1
58%
(10) T1
1
T1
3 T1
2 T2
Mark (11)
가

- in patients with systemic lupus erythematosus. *Neurology* 1992;42: 1649-1657
2. Stimmler MM, Coletti PM, Quismorio FP Jr. Magnetic resonance imaging of the brain in neuropsychiatric systemic lupus erythematosus. *Semin Arthritis Rheum* 1993;22:335-349
 3. Van Dam AP. Diagnosis and pathogenesis of CNS lupus. *Rheumatol Int* 1991;11:1-11
 4. Bruyn GAW. Controversies in lupus: nervous system involvement. *Ann Rheum Dis* 1995;54:159-167
 5. Baum KA, Hopf U, Nehrig C, Stover M, Schorner W. Systemic lupus erythematosus: neuropsychiatric signs and symptoms related to cerebral MRI findings. *Clin Neurol Neurosurg* 1993;95:29-34
 6. Ward MM, Studenski S. Systemic lupus erythematosus in man: A multivariate analysis of gender differences in clinical manifestations. *J Rheumatol* 1990;17:220-224
 7. Sibbitt WL Jr, Sibbitt RR, Griffey RH, Eckel C, Bankhurst AD. Magnetic resonance and computed tomographic imaging in the evaluation of acute neuropsychiatric disease in systemic lupus erythematosus. *Ann Rheum Dis* 1989;48:1014-1022
 8. Long AA, Denburg SD, Carbotte RM, Signal DP, Denburg JA. Serum lymphocytotoxic antibodies and neurocognitive function in systemic lupus erythematosus. *Ann Rheum Dis* 1990;49:249-253
 9. Feinglass EJ, Arnett FC, Dorsch CA, Zizic TM, Stevens MB. Neuropsychiatric manifestations of systemic lupus erythematosus: diagnosis, clinical spectrum and relationship to other features of the disease. *Medicine* 1976;55:323-339
 10. 1992;28:658-663
 11. Jarek MJ, West SG, Baker MR, Rak KM. Magnetic resonance imaging in systemic lupus erythematosus patients without a history of neuropsychiatric lupus erythematosus. *Arthritis Rheum* 1994; 37:1609-1613
 12. Bell CL, Partington C, Robbins M, Graziano F, Turski P, Kornguth S. Magnetic resonance imaging of central nervous system lesions in patients with lupus erythematosus. *Arthritis Rheum* 1991;34:432-441
 13. Johnson RT, Richardson EP. The neurological manifestations of systemic lupus erythematosus. *Medicine(Baltimore)*. 1968;47:337-369
 14. Bilaniuk LO, Pastel S, Zimmerman R. Computed tomography of systemic lupus erythematosus. *Radiology* 1977;124:119-121
 15. Huckman MS, Fox J, Topel J. Validity of criteria for the evaluation of cerebral atrophy by computed tomography. *Radiology* 1975;116: 85-92
 16. Ostrov SG, Quencer RM, Gaylis NB, Altmen RD. Cerebral atrophy of systemic lupus erythematosus: steroid- or disease- induced phenomenon? *AJNR Am J Neuroradiol* 1982;3:21-23

Brain MRI Findings of Neuropsychiatric Lupus¹

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Purpose: To evaluate the brain MRI findings in patients with neuropsychiatric lupus.

Materials and Methods: In 26 patients (M:F = 2:24; aged 9 - 48 years) in whom the presence of systemic lupus erythematosus was clinically or pathologically proven and in whom neuropsychiatric lupus was also clinically diagnosed, the findings of brain MRI were retrospectively evaluated. MR images were analyzed with regard to the distribution, location, size and number of lesions due to cerebral ischemia or infarction, the presence of cerebral atrophy, and the extent and degree of brain parenchymal and intravascular enhancement.

Results: The most common MRI findings were lesions due to cerebral ischemia or infarction occurring in 18 patients (69%), and located within deep periventricular white matter (n = 10), subcortical white matter (n = 8), the cerebral cortex (n = 7), basal ganglia (n = 7), or brain stem or cerebellum (n = 2). The lesions were single (n = 3) or multiple (n = 15), and in 17 patients were less than 1 cm in diameter in regions other than the cerebral cortex. In six of these patients, lesions of 1 - 4 cm in diameter in this region were combined, and one occurred in the cerebral cortex only. Cerebral atrophy was seen in 16 patients (62%), in ten of whom there was no past history of treatment with steroids for more than six months. In 15 patients (58%), contrast-enhanced MR image revealed diffuse enhancement of the basal ganglia or intravascular enhancement. In no case were MRI findings normal.

Conclusion: The primary manifestations of neuropsychiatric lupus are multifocal ischemia or infarctions in the cerebral cortex, and subcortical and deep white matter, and the cerebral atrophy. Contrast-enhanced MR images also demonstrated diffuse enhancement of the basal ganglia and intravascular enhancement, both thought to be related to the congestion due to the stagnation of cerebral blood flow.

Index words : Brain, infarction
Lupus erythematosus
Brain, MR

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