BRAIN MAGNETIC RESONANCE IMAGING FINDINGS IN SYSTEMIC LUPUS ERYTHEMATOSIS PATIENTS

Abdelaziz Mohamed Abdelaziz Alnekeidy, Amr Mohamed Ahmed El Fatatry,* Moataz Mohamed Montasser Mahmoud, Aya Mohamed Ahmed Abd El Galeel, Hajar Muhammad Awadallah Saleh
Department of Radiodiagnosis and Intervention, Department of Neuropsychiatry,* Faculty of Medicine, Alexandria University

INTRODUCTION

Lupus cerebritis, a rare neuropsychiatric manifestation of SLE, presents with symptoms like cognitive impairment, seizures, and psychosis, contributing to increased morbidity and mortality. It can also cause headaches, anxiety, depression, and pseudodementia. Up to 40% of adult NPSLE symptoms appear before or at the time of SLE diagnosis, and 60% within a year after diagnosis. The etiology is complex, involving infections, drug use, brain abnormalities, and metabolic dysfunction. Early SLE workup and a multidisciplinary approach improve patient outcomes

MRI is a sensitive noninvasive test for neuroimmunological conditions but is not definitive for specific inflammatory CNS disorders. Despite lacking specificity in distinguishing between vascular and parenchymal inflammation, MRI helps in identifying cerebral brain artery diseases. Recent research suggests MRI can detect vessel wall inflammation in vasculitis, aiding in categorizing imaging signs into indirect indicators like cerebral perfusion deficits and direct indicators such as vessel wall thickening and enhancement.

AIM OF THE WORK

The aim of this work was to study the different cerebral findings of brain MRI in patients with systemic lupus erythematosis.

PATIENTS AND METHODS

SUBJECTS: The study conducted on fifty patients with clinically suspected lupus cerebritis (Major symptoms of lupus cerebritis are seizures, stroke and headache). Other symptoms include imbalance, confusion or hallucinations. Central nervous system signs and symptoms in patients referred to the Radiodiagnosis Department at Alexandria Main University Hospitals.

METHODS:

- Through history taking including personal data and different systemic and neurological complaints.

-Clinical examination including:general and neurological examinations

- MR Imaging:

(1) Pre-contrast series included:

-Axial and sagittal T1. -Axial and coronal T2.

-Axial FLAIR. -3D FLAIR.

-Diffusion-weighted imaging (DWI). -SWI.

(2) Post-contrast series (following injection of (Gad-DTPA) (Magnevist).

(3) MRA. (4) MRV. (5) 3D DIR. (6) VWI.

RESULTS

Table : Distribution of the studied cases according to MRI findings (n = 50)

	No.	%
Steroid induced atrophy or age non-matched atrophy	8	16
Old ischemic insults or encephalomalecia	11	22
Acute infarcts	6	12
Cerebral Microbleeds	5	10
Cerebral Hemorrhage	2	4
Vasculitic patches	8	16
Non-specificpatches	10	20
PRES	7	14
Orbital Manifestations	4	8
Striatal encephalopathy	2	4
Normal MRI	20	40

Figure1: 22years old female patient presented with blurred vision and severe hypertension, MRI study showed striatal encephalopathy, PRES and exudative retinal detachment.

Figure2: 31years old female, presented with disturbed level of consciousness, MRI showed extensive vasculitic patches and brain atrophy.

Figure3: Patient with history of slurred speech, MRI showed left sided stroke. MRA showed attenuated left MCA.

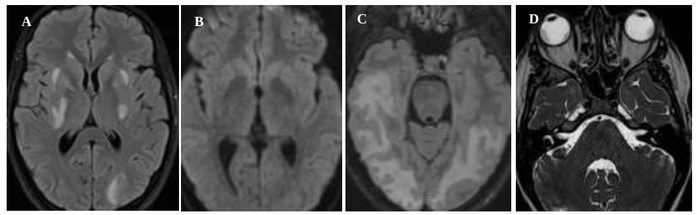

Figure 1: A)axial FLAIR showed hyperintense signal at basal ganglia B)diffusion showing no restriction at the basal ganglia patches C) axial FLAIR showing bilateral hyperintense signal at occipital lobes (PRES) D) T2 shows bilateral exudative retinal detachment.

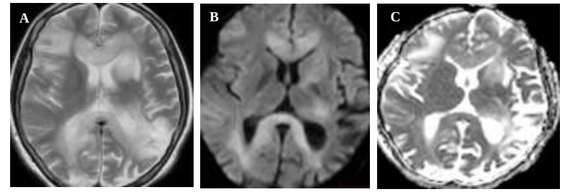

Figure3: Axial T2 showing hyperintense patches involving right frontal, left parietal regions, left caudate nucleus, periventricular WM as well as splenium and genu of corpus callosum B,C) diffusion and ADC show no diffusion restriction

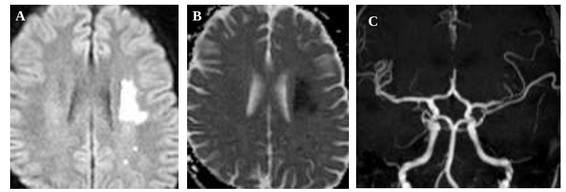

Figure3: A,B) DWI and ADC shows restricted diffusion at left MCA territory (left parietal region MRA MIP image shows attenuated caliber of left MCA.

CONCLUSIONS

Brain MRI in systemic lupus erythematosus (SLE) reveals diverse abnormalities, highlighting its importance in diagnosing CNS involvement. Common findings include white matter hyperintensities, old ischemic insults, non-specific patches, and age-inappropriate brain atrophy. Vasculitic patches, striatal encephalopathy, and visual/orbital abnormalities affecting the optic nerve further underscore the disease's complexity.

MRA and MRV identify vascular complications. Vessel wall imaging (VWI) adds insights with mural post-contrast enhancement. These techniques collectively enhance understanding and management of neuroimmunological and vascular complications in SLE.