



MRI CONTRIBUTION TO THE DIFFERENTIAL DIAGNOSIS OF MULTIPLE SCLEROSIS-LIKE DISEASE

Carlos Casimiro¹, Sónia Batista², Joana Martins¹, Tiago Parreira¹, Pedro Freitas¹

¹ Neuroradiology, Hospitais da Universidade de Coimbra, Portugal

² Neurology, Hospitais da Universidade de Coimbra, Portugal

Introduction

MRI has allowed MS diagnosis to be done earlier and easier. However, due to increasing MRI accessibility and its high sensitivity, white matter lesions (WML) are

more frequently found. Due to their nonspecificity, these injuries have numerous etiologic possibilities and resulting in difficulties in differential diagnosis of MS.

Purpose

This study aims to characterize a series of patients with undetermined etiology WML on MRI, and suspected MS. We identified atypical imaging features and the

cerebrospinal fluid findings, which allowed the differential diagnosis.

Methods

We analysed retrospectively 227 patients who had been admitted to Hospitais da Universidade de Coimbra with a query diagnosis of MS. A total of 37 patients were

selected due to finding WMLs via MRI, which were hyperintense at T2-WI, and therefore were the main argument for a suspect of MS.

Results

■ We included 37 patients (median age: 42.4 years).

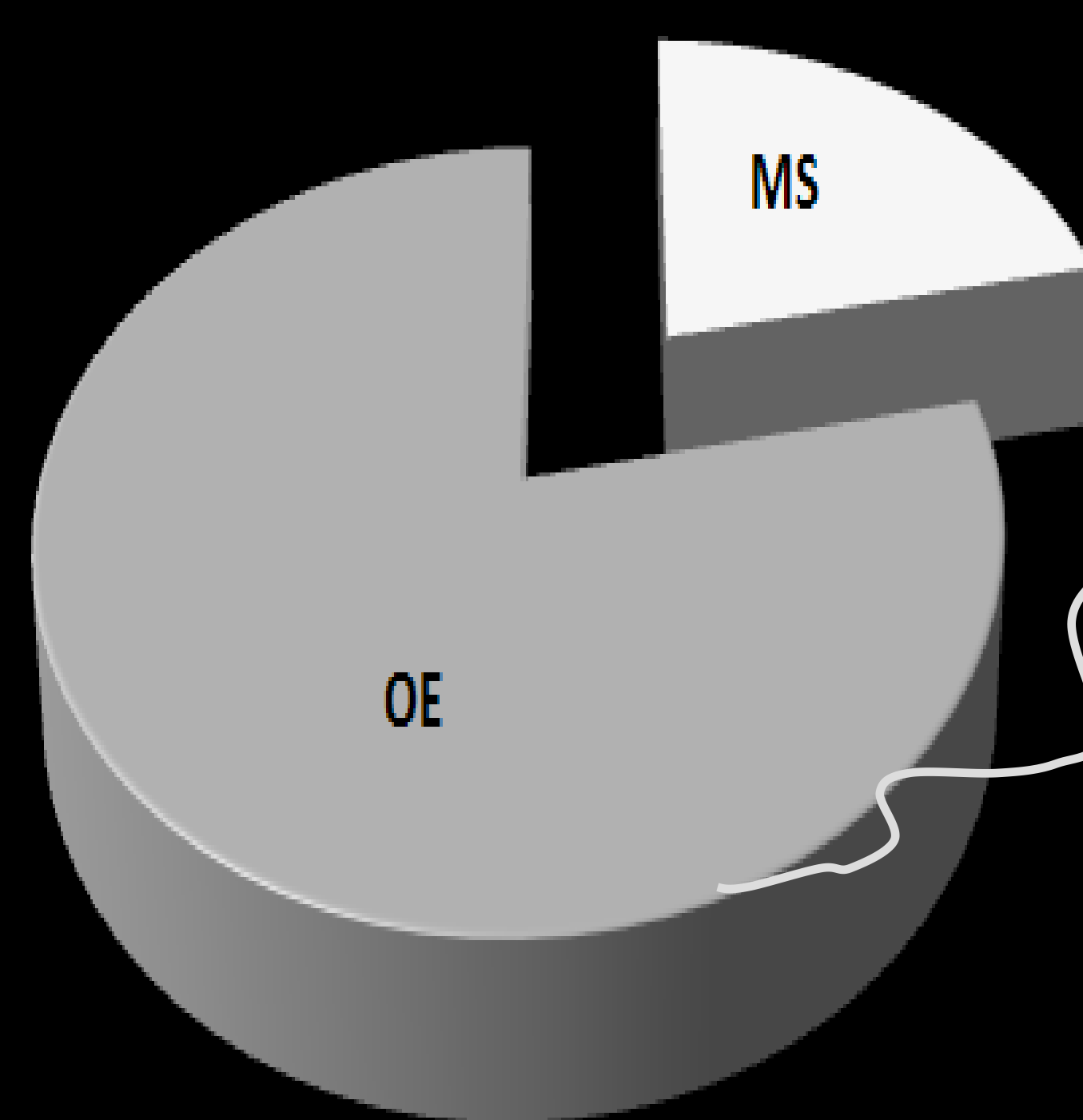
■ 24 females and 13 males were studied.

■ The symptoms that were the reason for the performance of brain MRI were variables (Table1).

Symptoms	Freq. (%)
Paresthesias	13 (35,2%)
Headache	10 (27,0%)
Dizziness	6 (16,2%)
Deafness	5 (13,5%)
Cognitive complaints	3 (8,1%)
Fatigue / general weakness	2 (5,4%)
Generalized pain	1 (2,7%)

Table 1.

■ We found that 21.6% of patients had MS as the main etiology for WMLs, whereas 78.4% had other etiologies (OE), namely hypoxico-ischemic (54.1%), inflammatory diseases (18.9%), infectious diseases (2.7%) and metabolic diseases (2.7%).



MECHANISM OF INJURY	Patients (%)
Hypoxico-ischemic	20 (54,1%)
Mental disorder	6
Migraine	5
Small vessel disease	5
Multisensory dizziness syndrome	3
Meniere's disease	1
Inflammatory	7 (18,9%)
Systemic eritematous lupus	2
Antiphospholipid syndrome	2
Mixed connective tissue disease	1
Isolated vasculitis	1
Infectious diseases	1 (2,7%)
Toxoplasmosis	1
Metabolic diseases	1 (2,7%)
Adrenoleukodystrophy	1

Table 2.

■ The imagiological characteristics for the WML found for OE were atypical for MS, namely due to their location and morphology.

■ Oligoclonal IgG bands (IgG-OCB) in the cerebrospinal fluid:

	IgG-OCB + (%)
MS	7 (87,5%)
OE	4 (13,8%)
Systemic eritematous lupus	2
Antiphospholipid syndrome	1
Mixed connective tissue disease.	1

p=0.0002

■ Brain white matter abnormalities on MRI:

	Periventricular	Juxtacortical	Infratentorial	Paraventricular	Gray matter
MS	8 (100%)	6 (75,0%)	6 (75,0%)	5 (62, 5%)	0
OE	15 (55,6%)	8 (29,6%)	6 (22,2%)	24 (88,9%)	10 (37,0%)
Hypoxico-ischemic	11 (55,0%)	7 (35,0%)	6 (30%)	18 (90%)	8 (40,0%)
Inflammatory	4 (57,1%)	1 (14,2%)	0	6 (85,7%)	2 (28,6%)

p=0.021 p=0.027 p=0.01 p >0.05 p=0.046

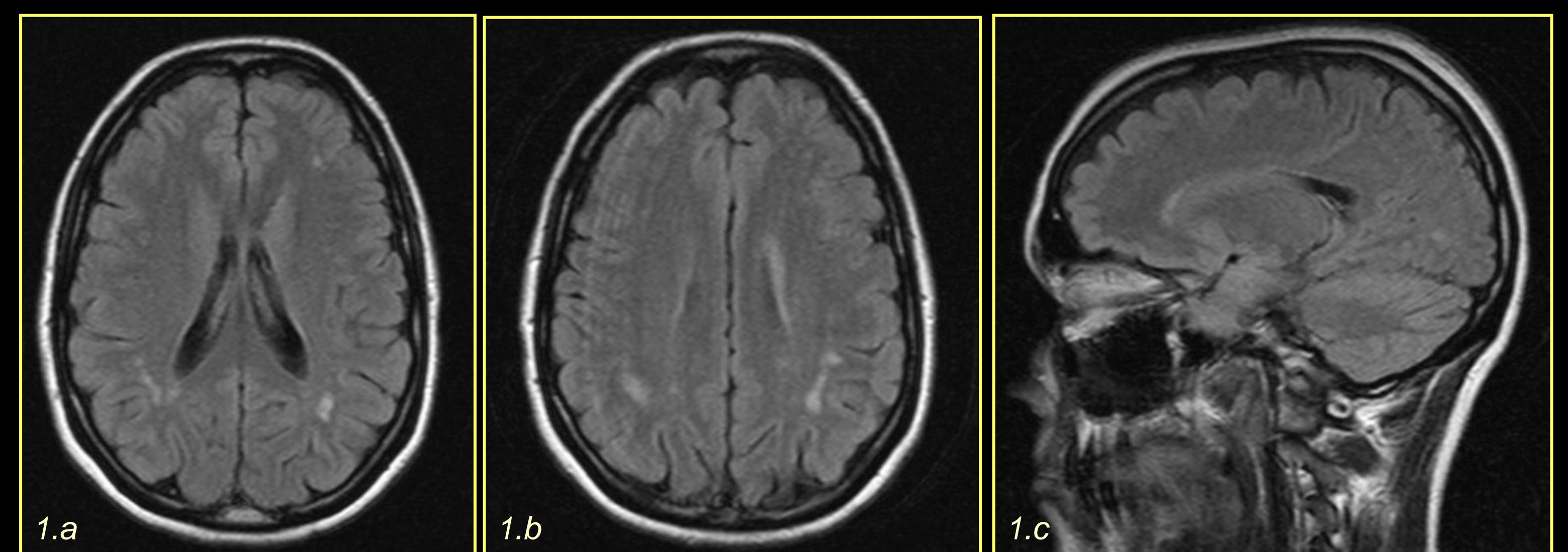


Fig1. A 38-year-old woman with migraine. a) e b) Axial FLAIR images. c) Sagittal FLAIR image



Fig. 2. A 38-year-old male with isolated vasculitis of the central nervous system. a) and b) Axial and sagittal FLAIR images. c) Axial post-contrast T1-WI.

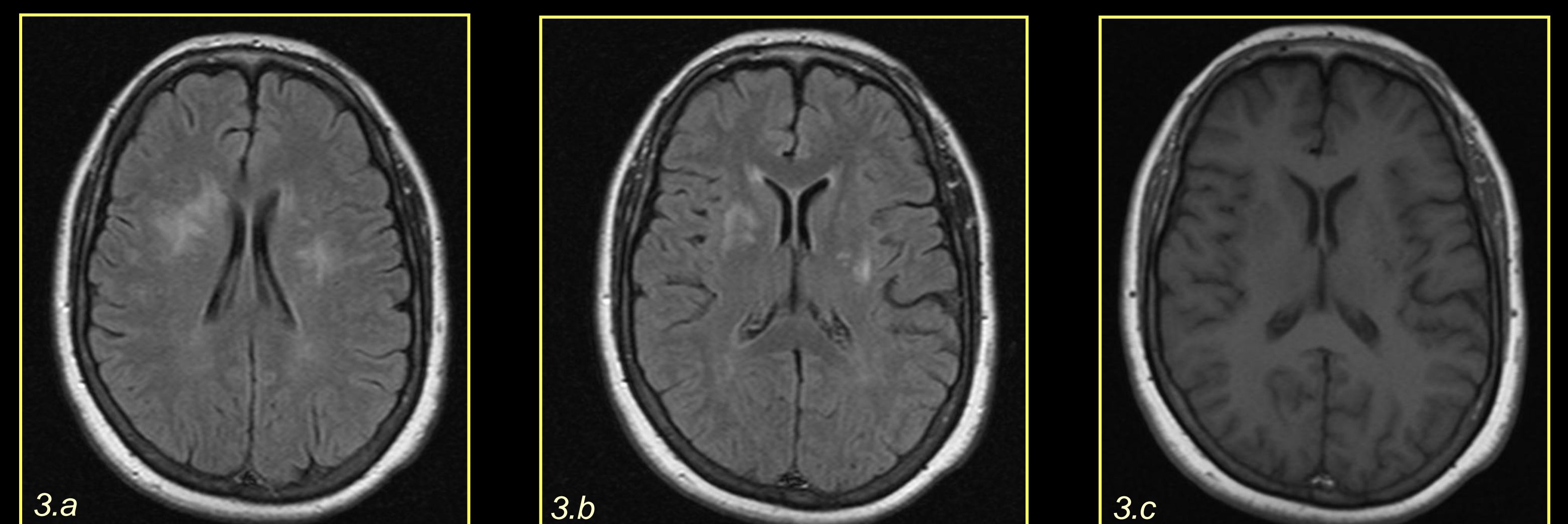


Fig. 3. A 51-year-old woman with antiphospholipid syndrome. a) and b) Axial FLAIR images. c) Axial T1-WI.

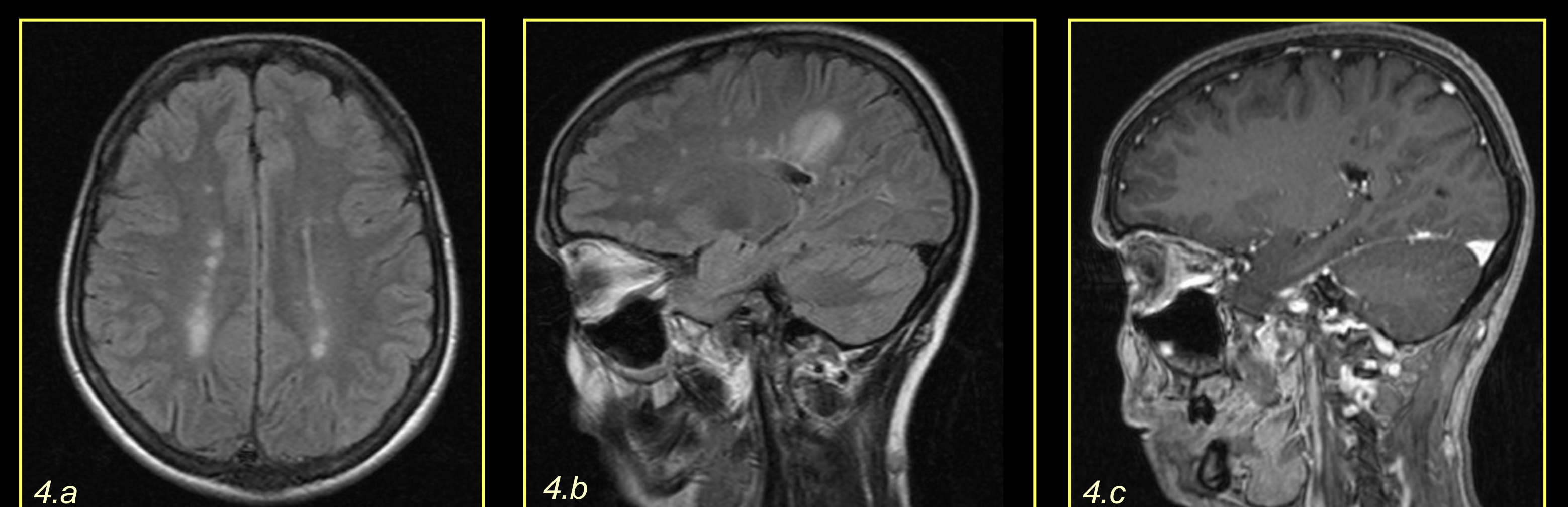


Fig. 4. A 41-year-old woman with MS. a) and b) Axial and sagittal FLAIR images. c) Axial post-contrast T1-WI.

Conclusions

These results corroborate those in the literature, and add that the most frequent etiology for WMLs in MRI is hypoxico-ischemic vasculopathy. Amongst the non-ischemic causes, MS is the most common followed by other inflammatory illness of

the brain.

The atypical nature of the imagiological characteristics of WMLs and the oligoclonal bands were the main elements for the differential diagnosis for MS.

References

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