

# Diagnostic Slide Session

American Association of Neuropathologists

June 2014, Portland, Oregon

Jane Cryan, Rebecca Gilanni, Rebecca Folkerth

Brigham and Women's Hospital

Boston



BRIGHAM AND  
WOMEN'S HOSPITAL



HARVARD  
MEDICAL SCHOOL

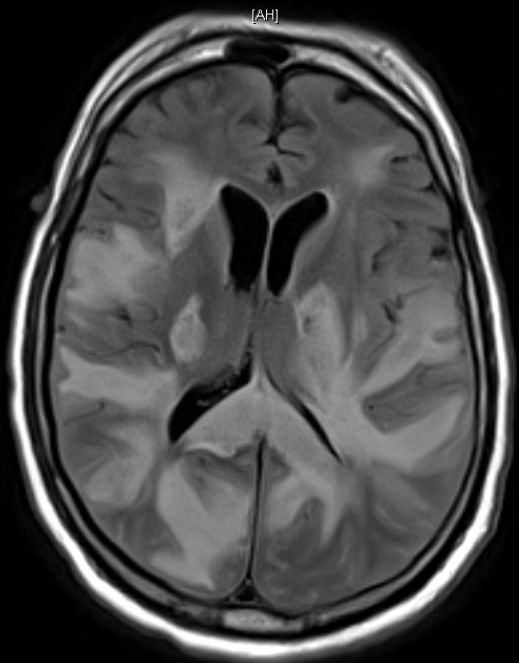
# Disclosures

- None

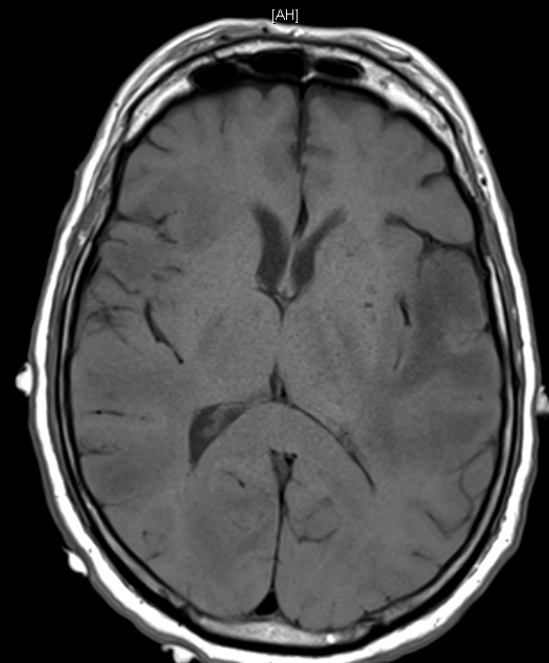


# Summary

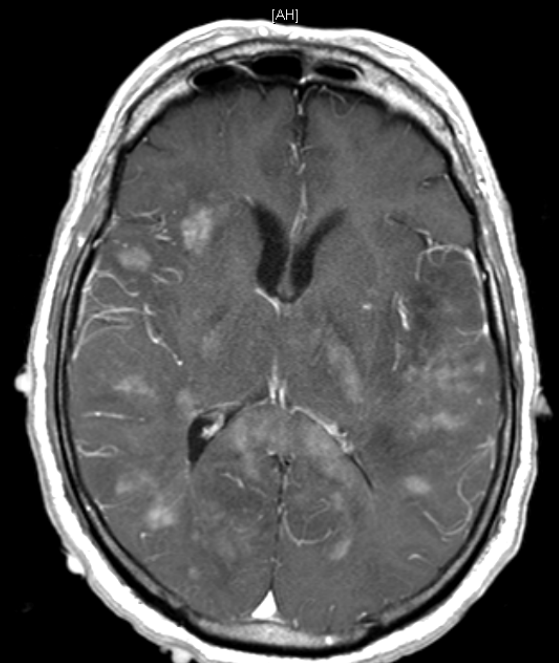
- 76 yr old immunocompetent man, painful dermatomal rash, rapidly progressive ascending weakness
- CSF: WBC 130 (80% neutrophils), total protein 191.5, VZV PCR positive
- NCS: Motor and sensory polyneuropathy with axonal and demyelinating features
- MRI brain/ spine on day 10: enhancement of cranial nerves, cauda equina



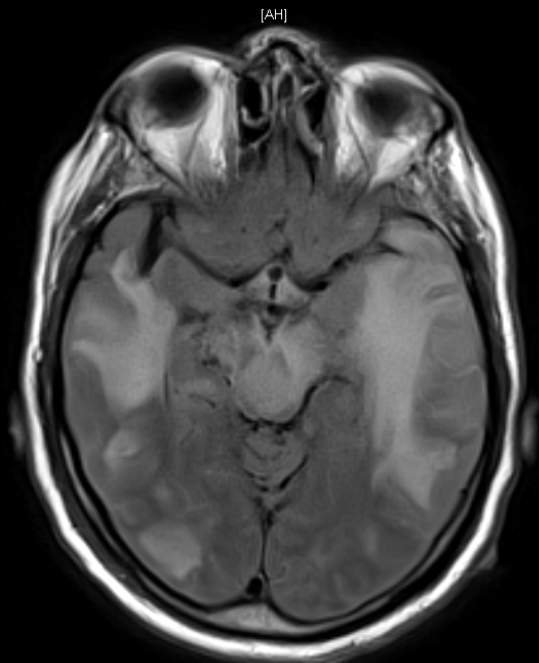
T2 FLAIR



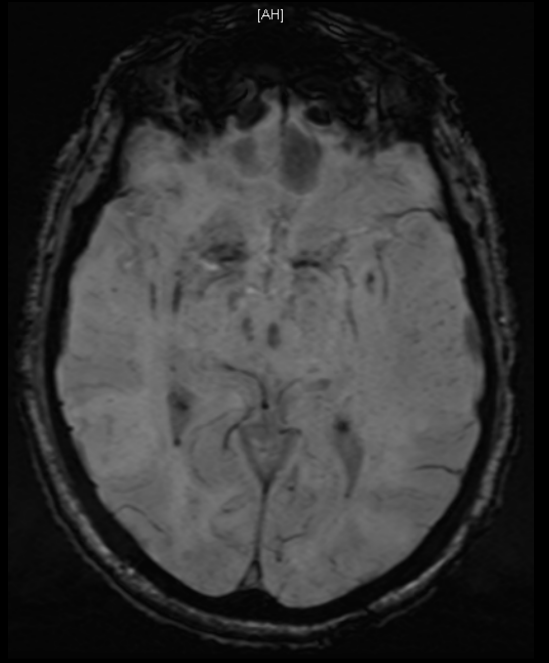
T1 PRE CONTRAST



T1 POST CONTRAST



T2 FLAIR

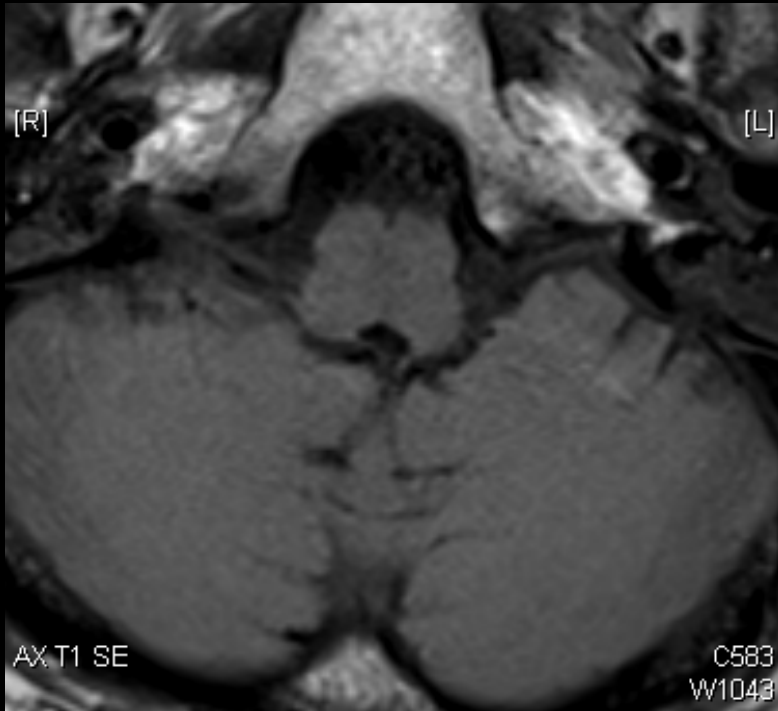


DWI

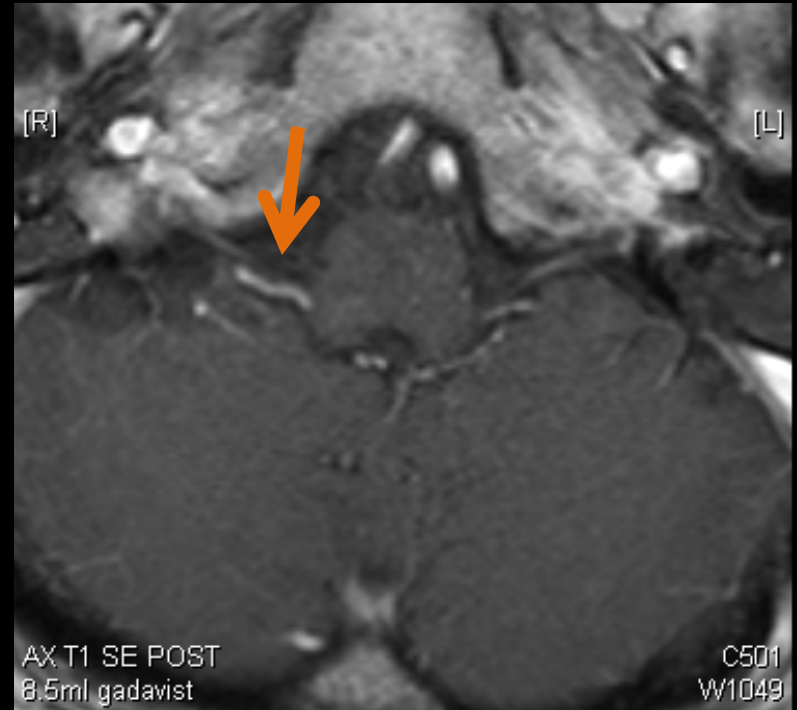


T1 POST CONTRAST

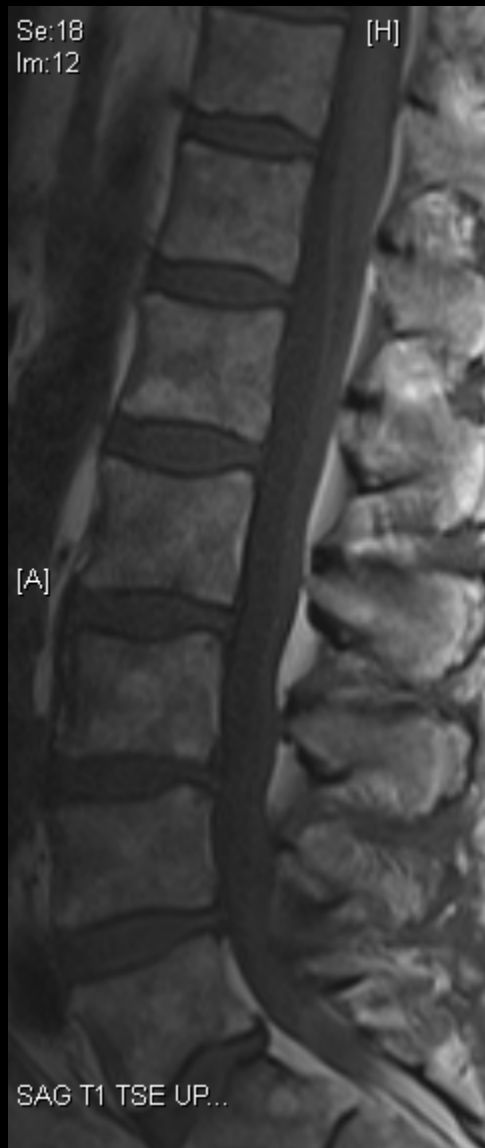
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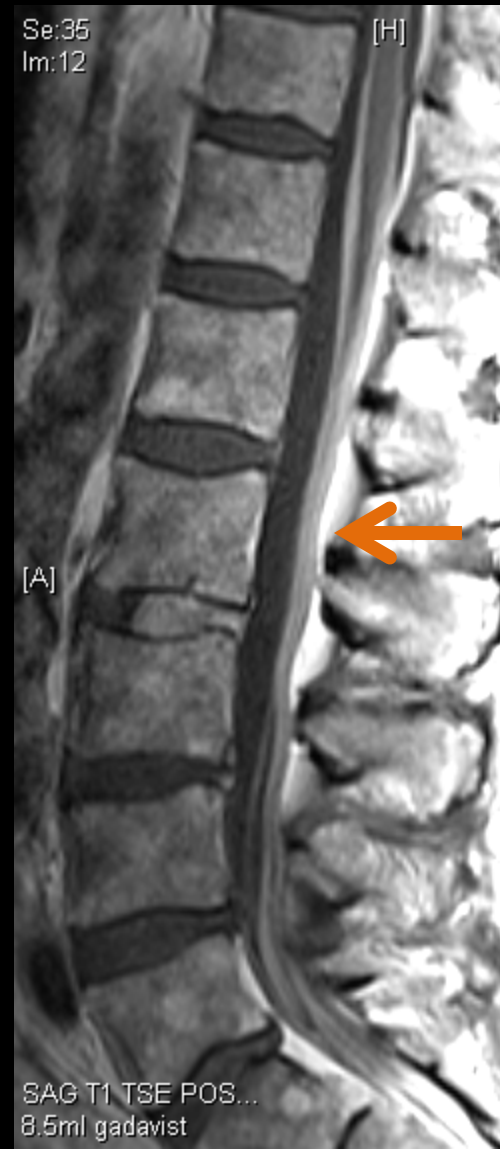
T1 pre-contrast



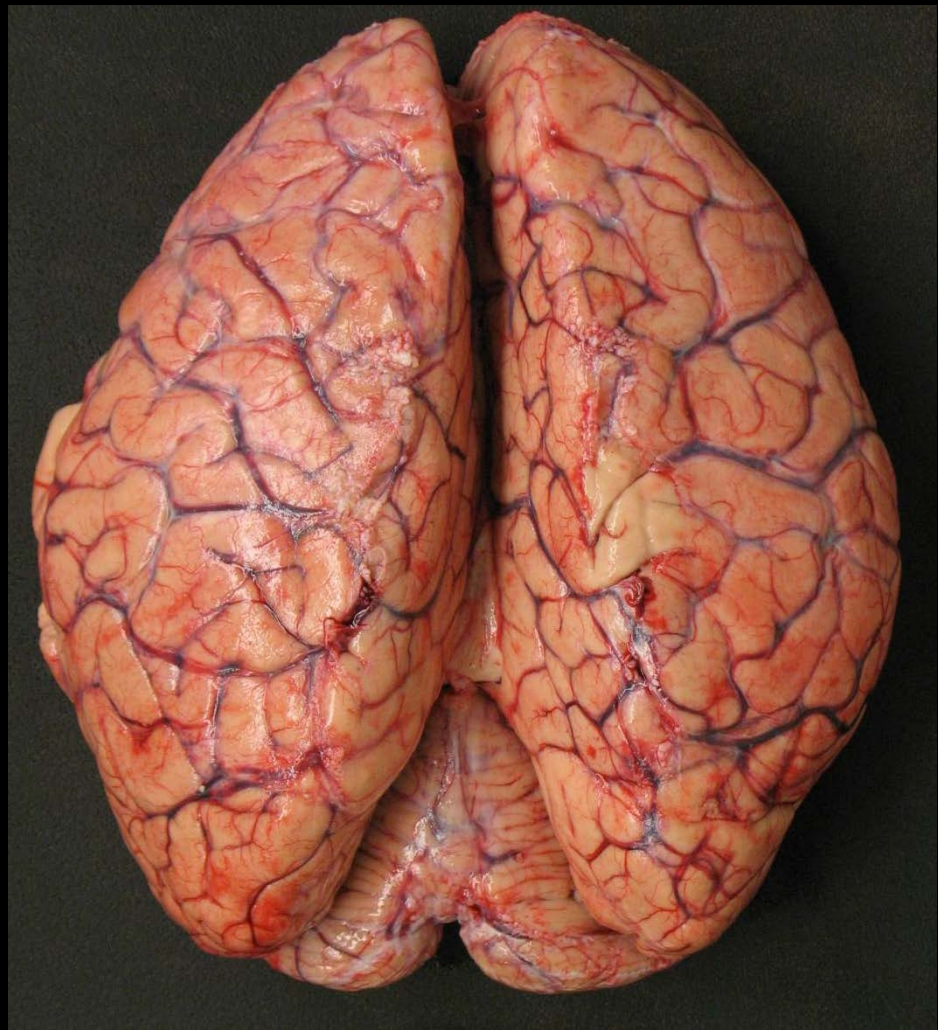
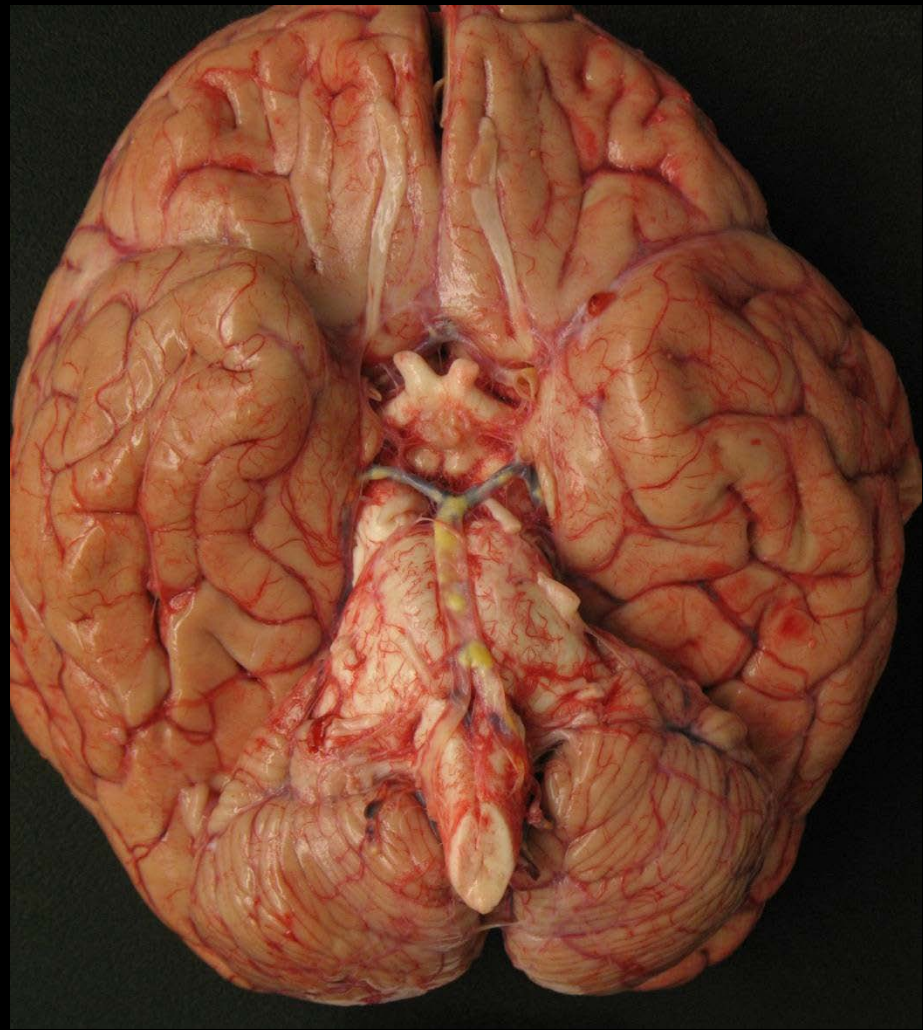
T1 post-contrast



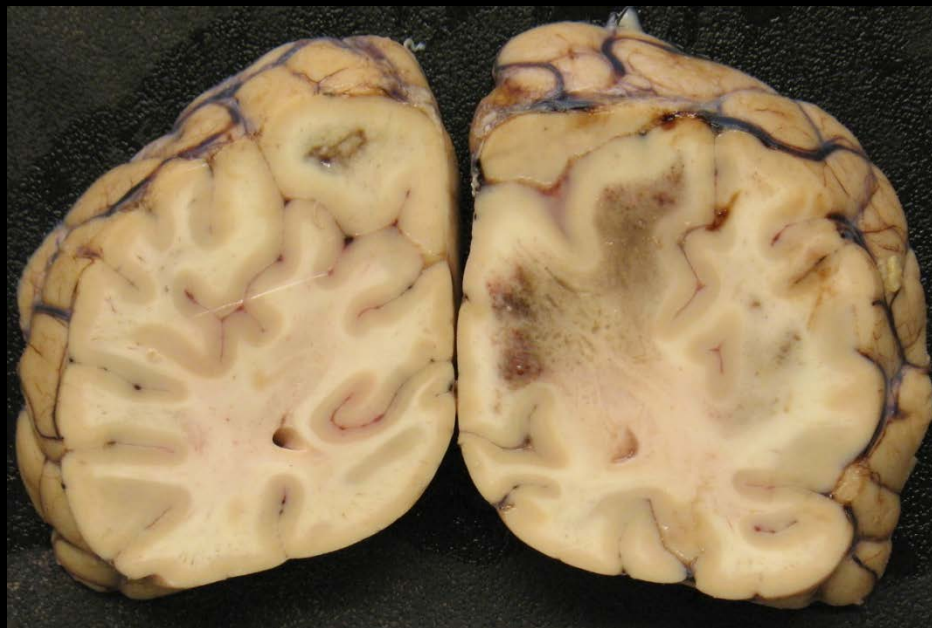
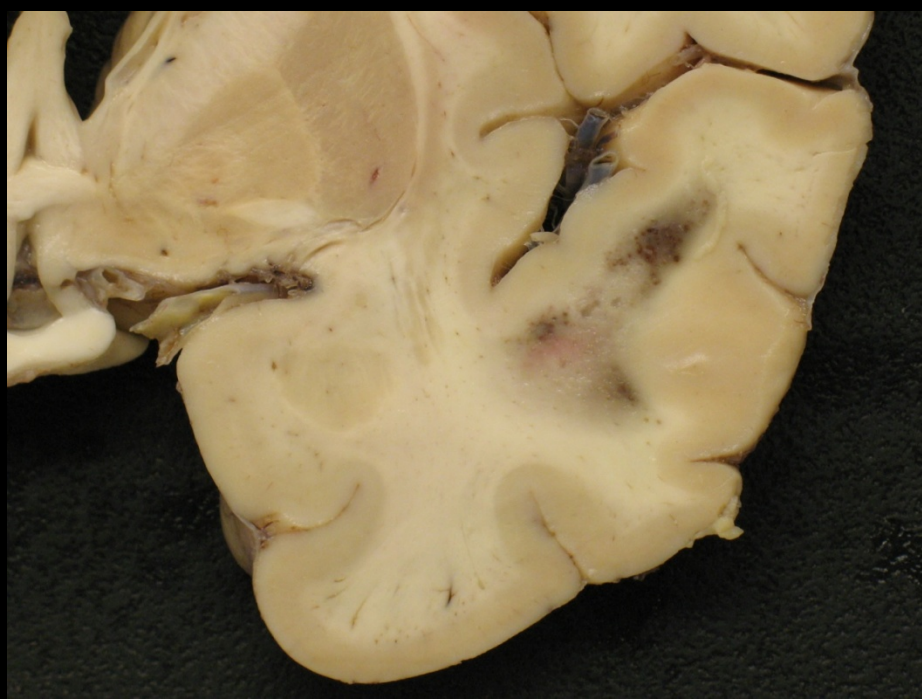
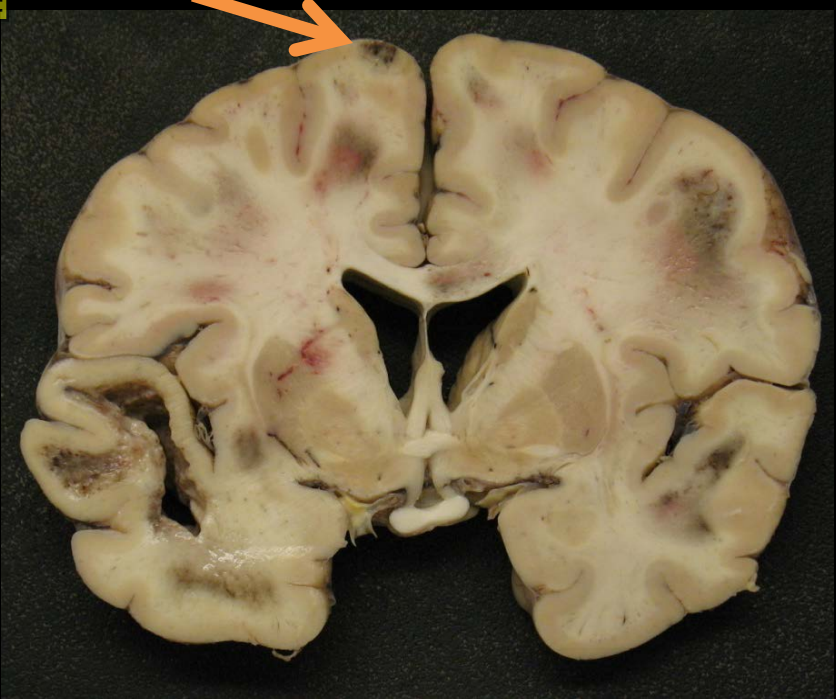
T1 pre-contrast



T1 post-contrast

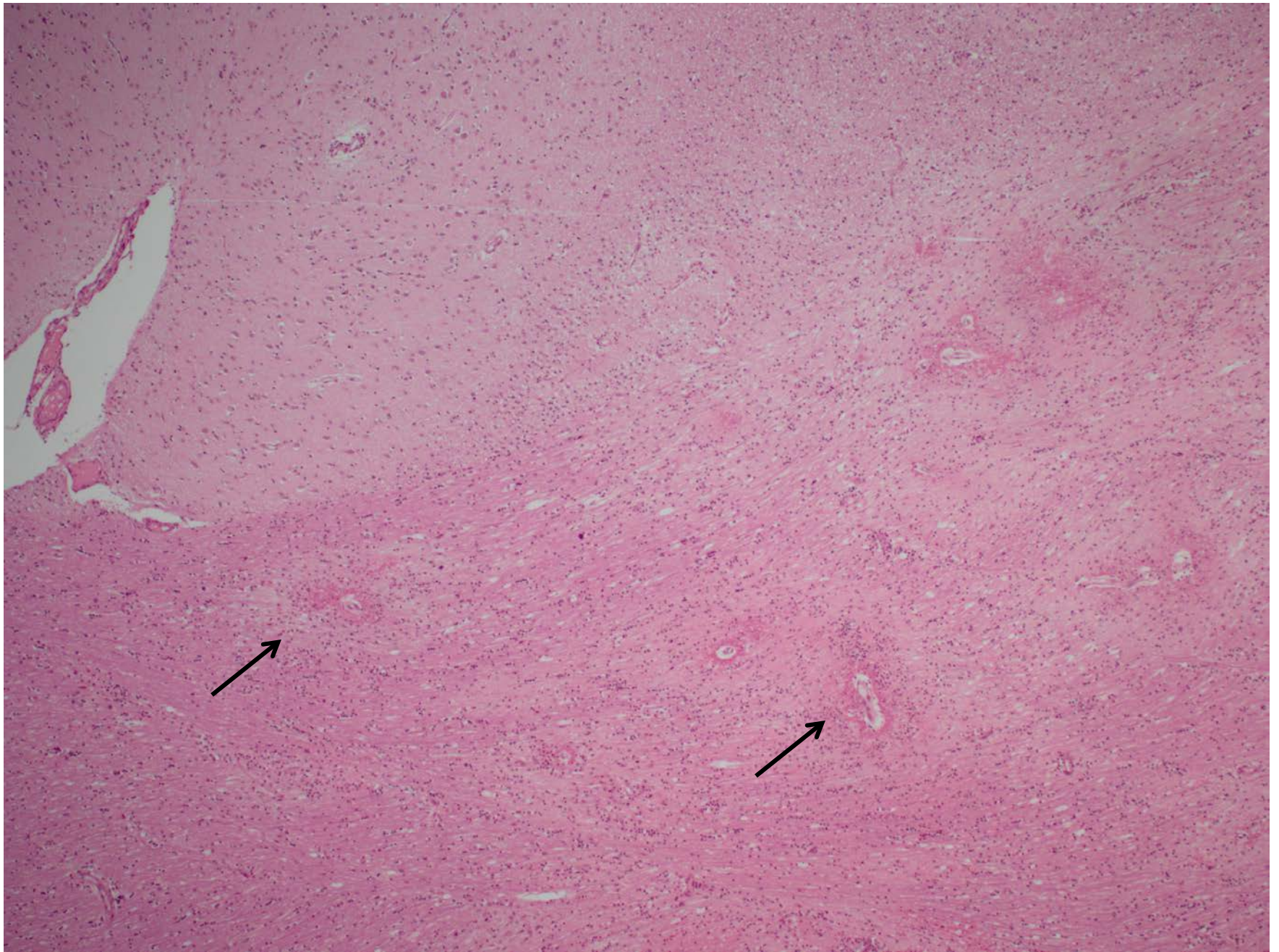


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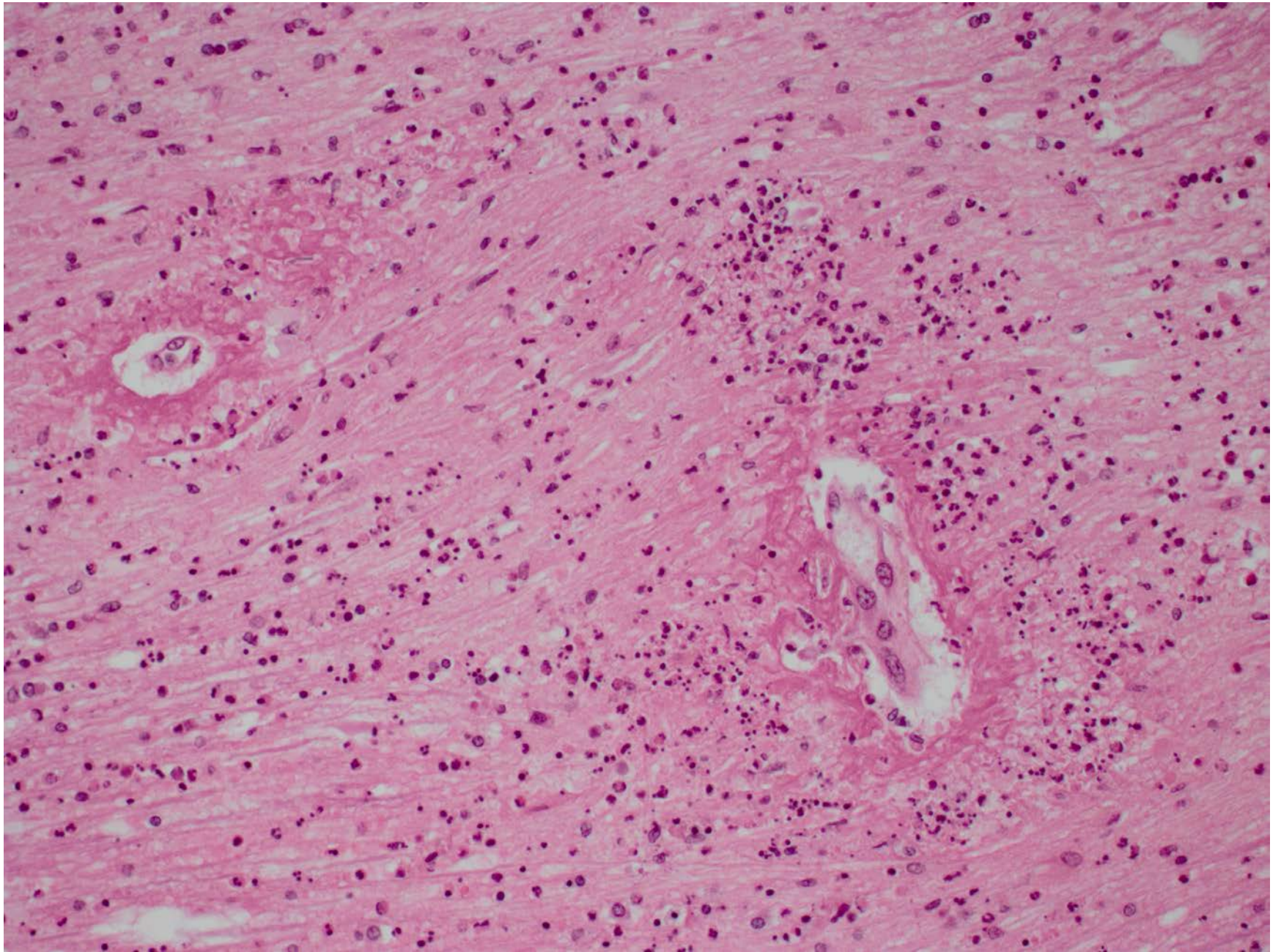




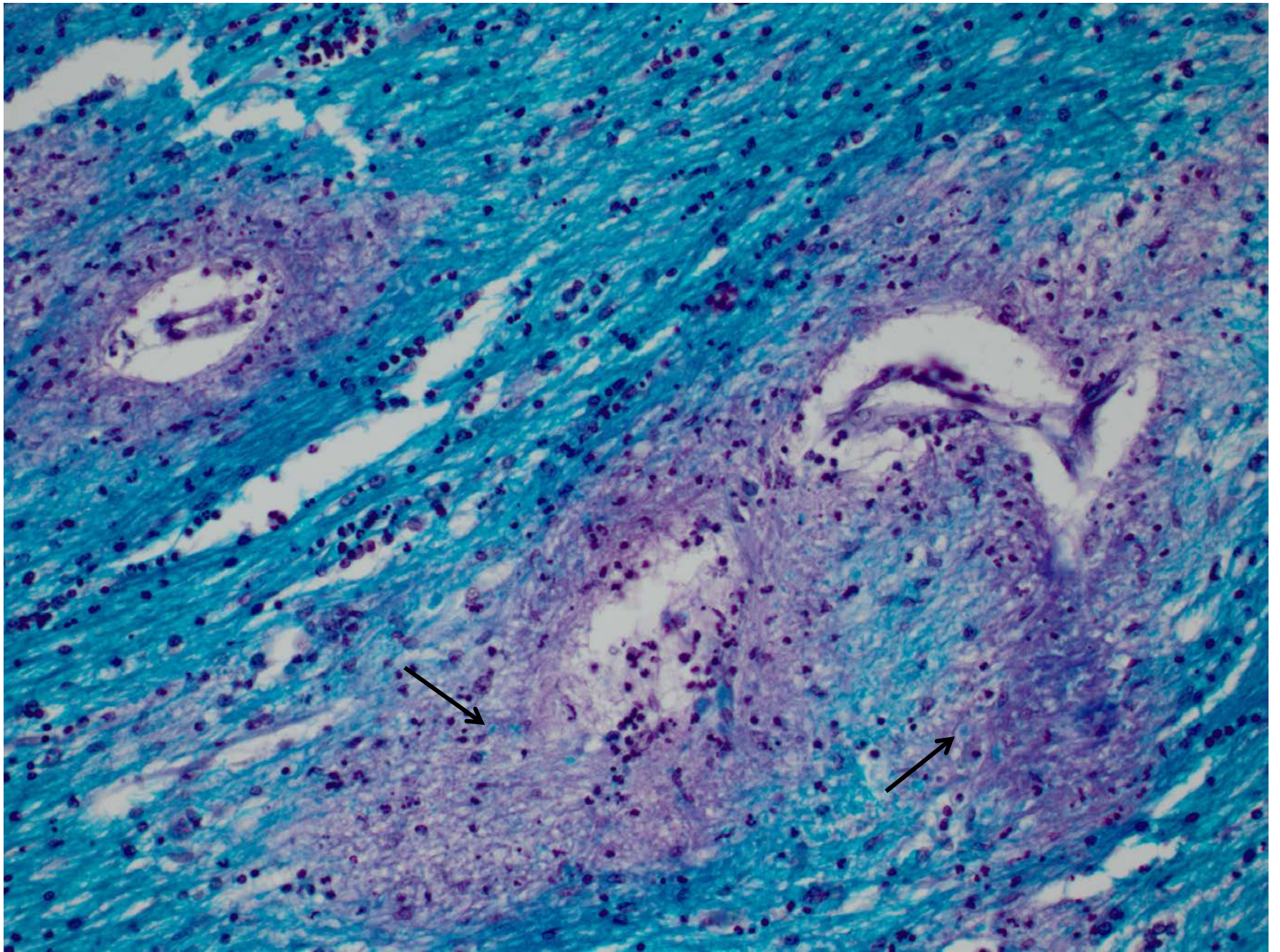




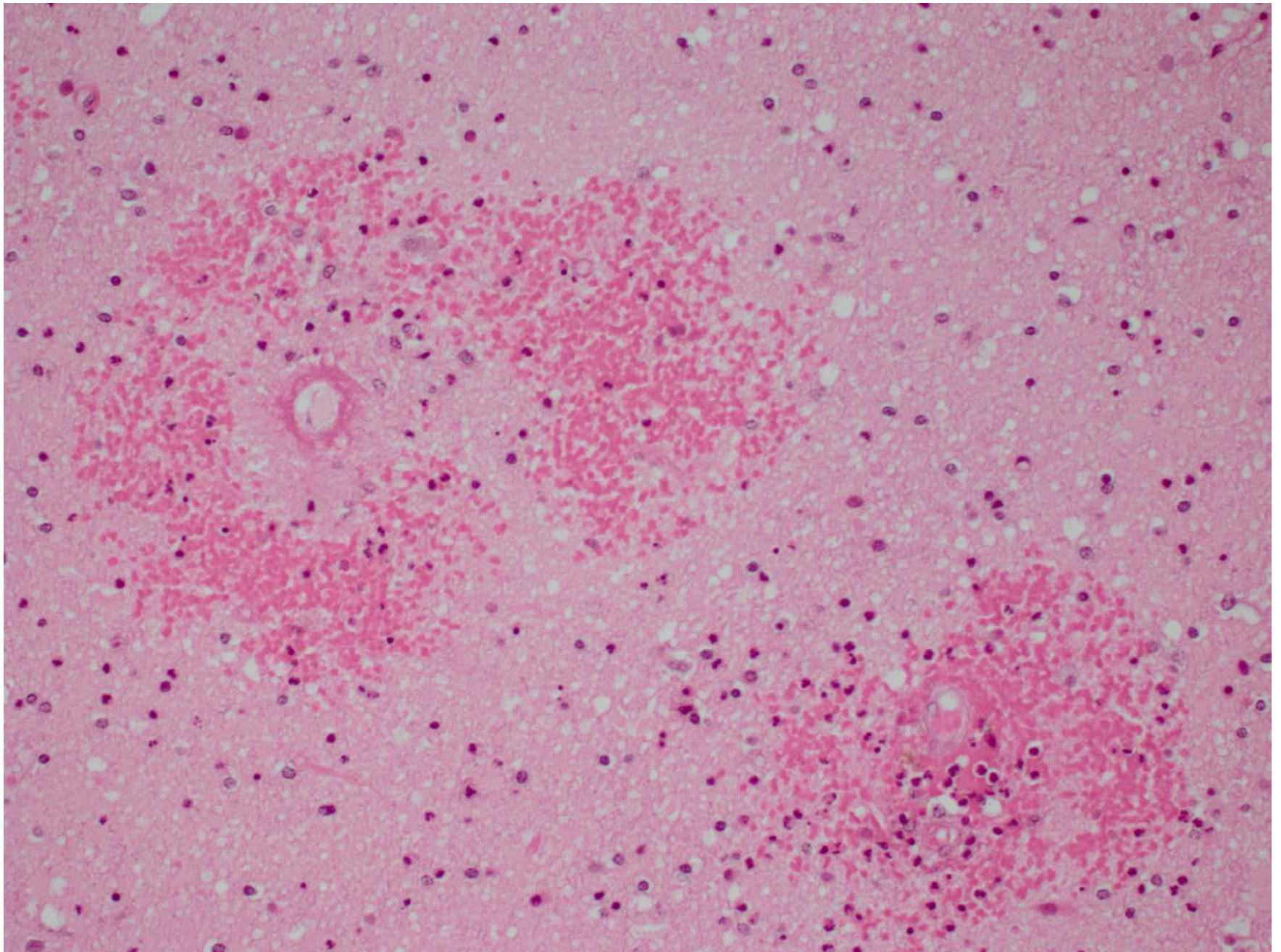
Cingulate cortex and white matter



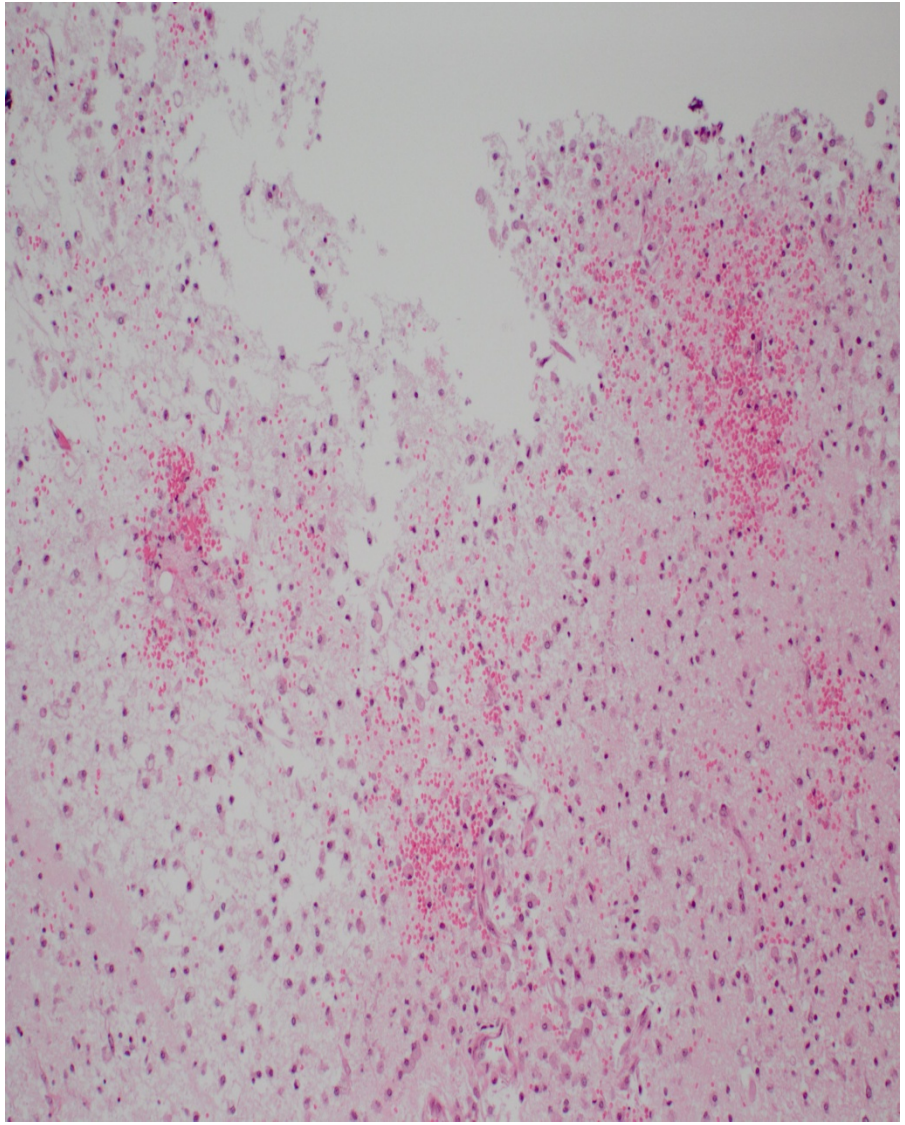
Cingulate white matter



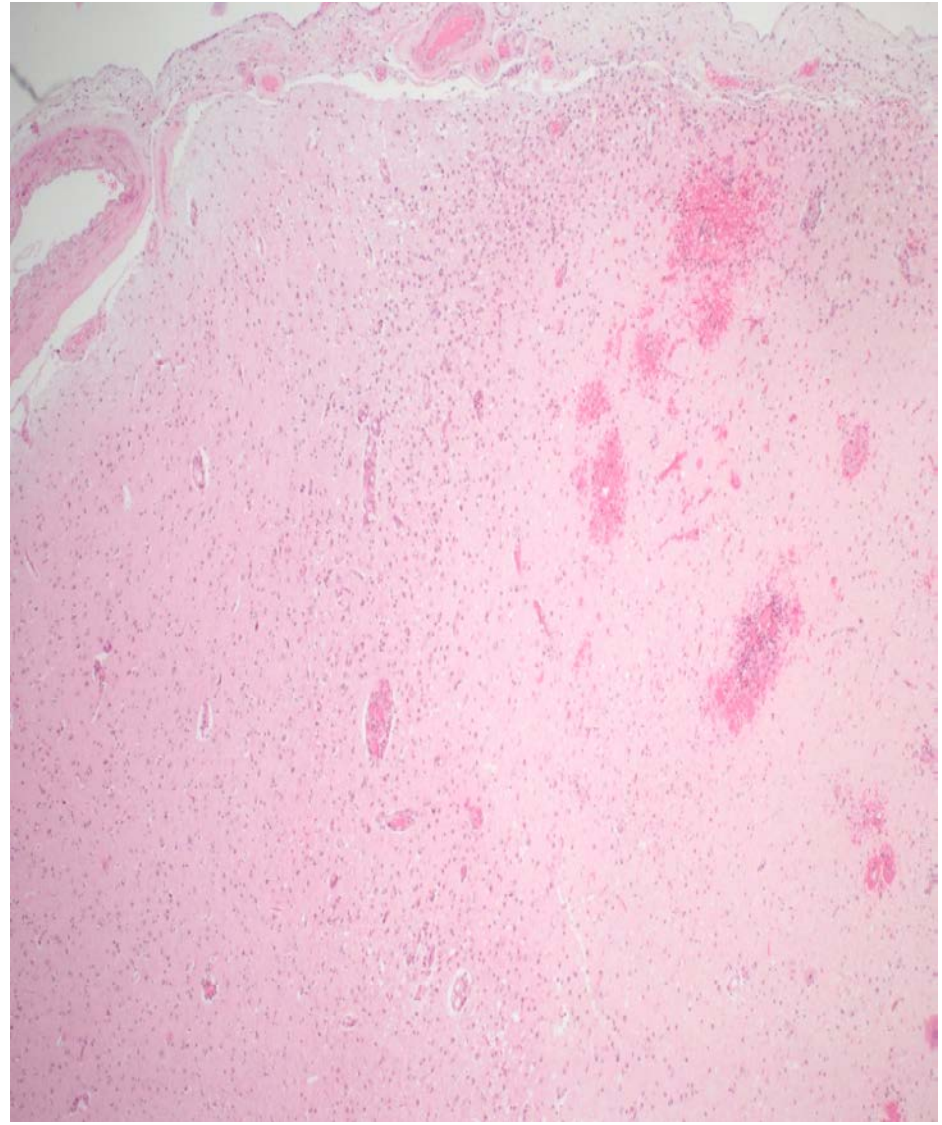
Cingulate cortex and white matter – LFB/PAS stain



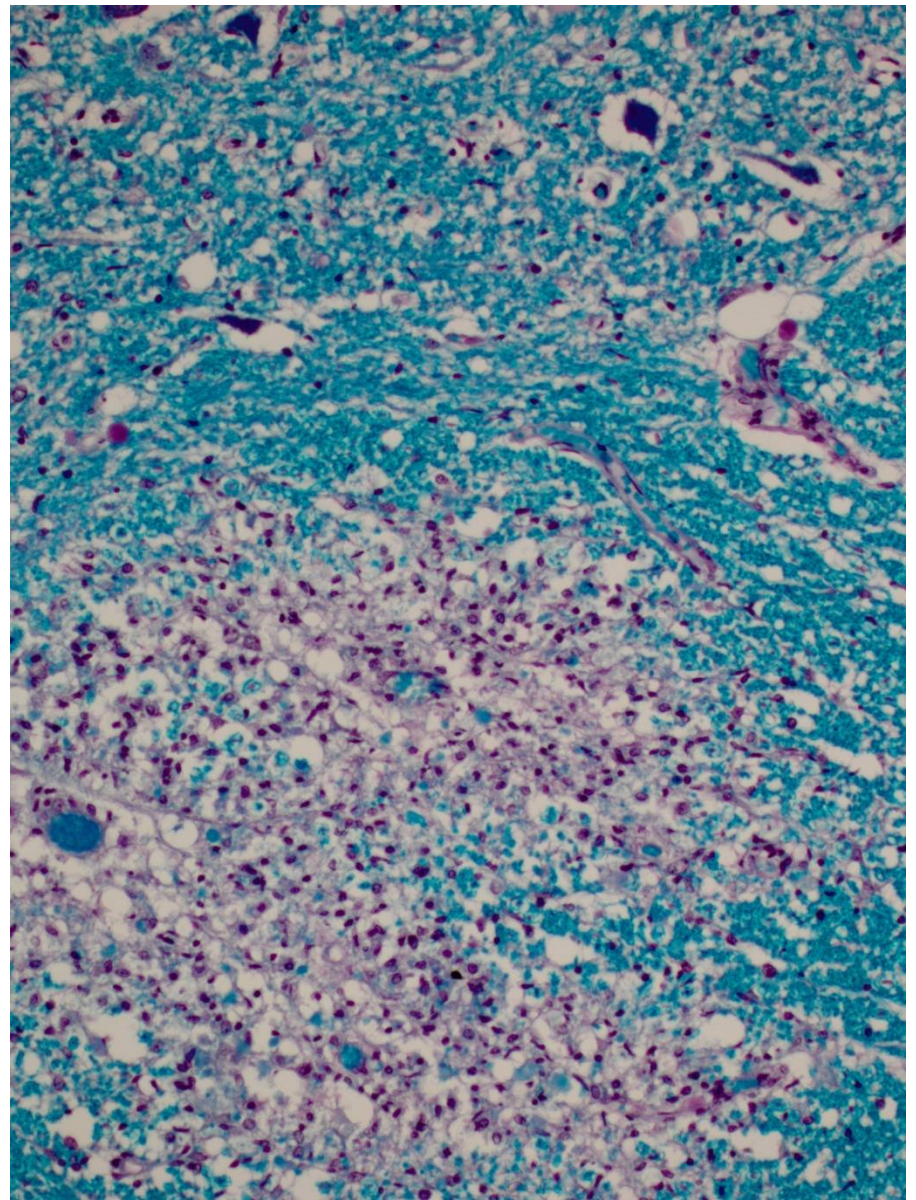
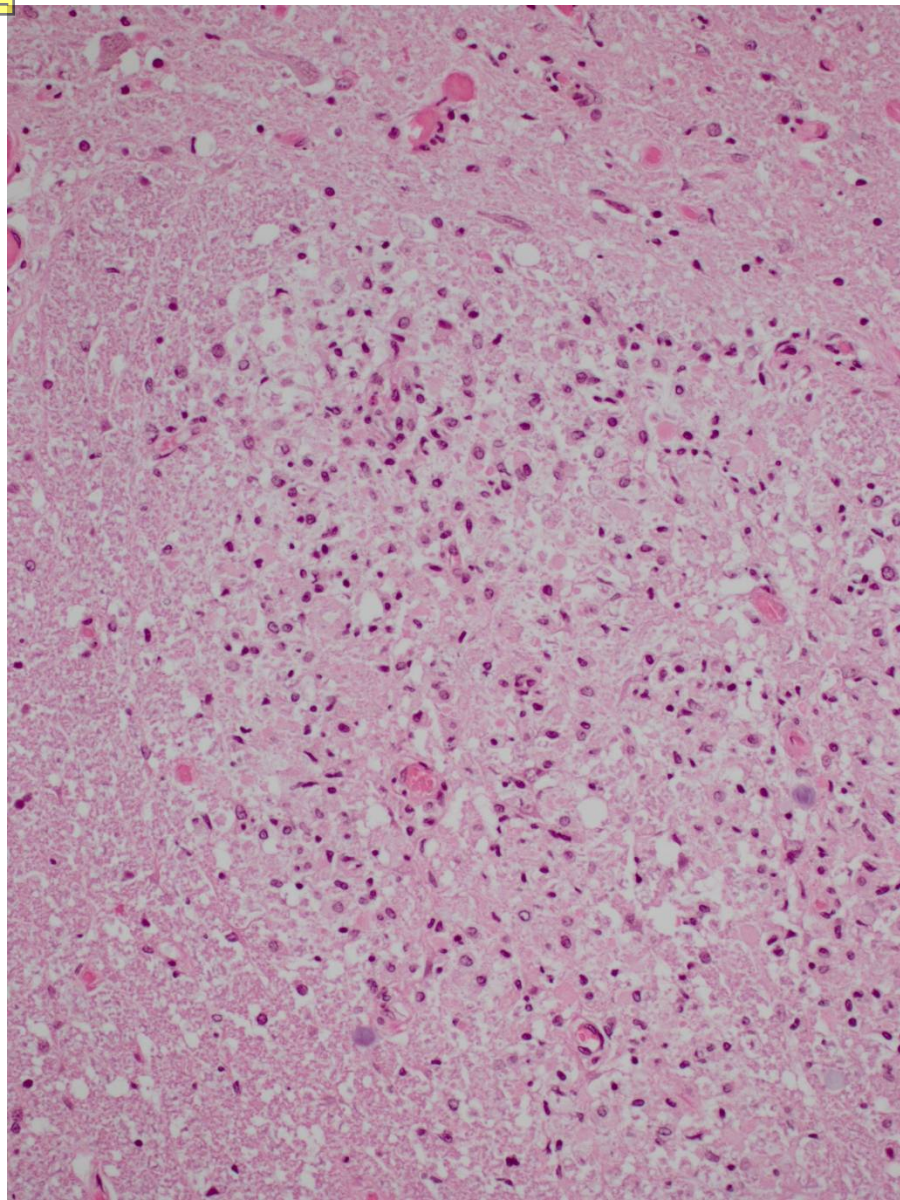
WM – “ring and ball hemorrhages”



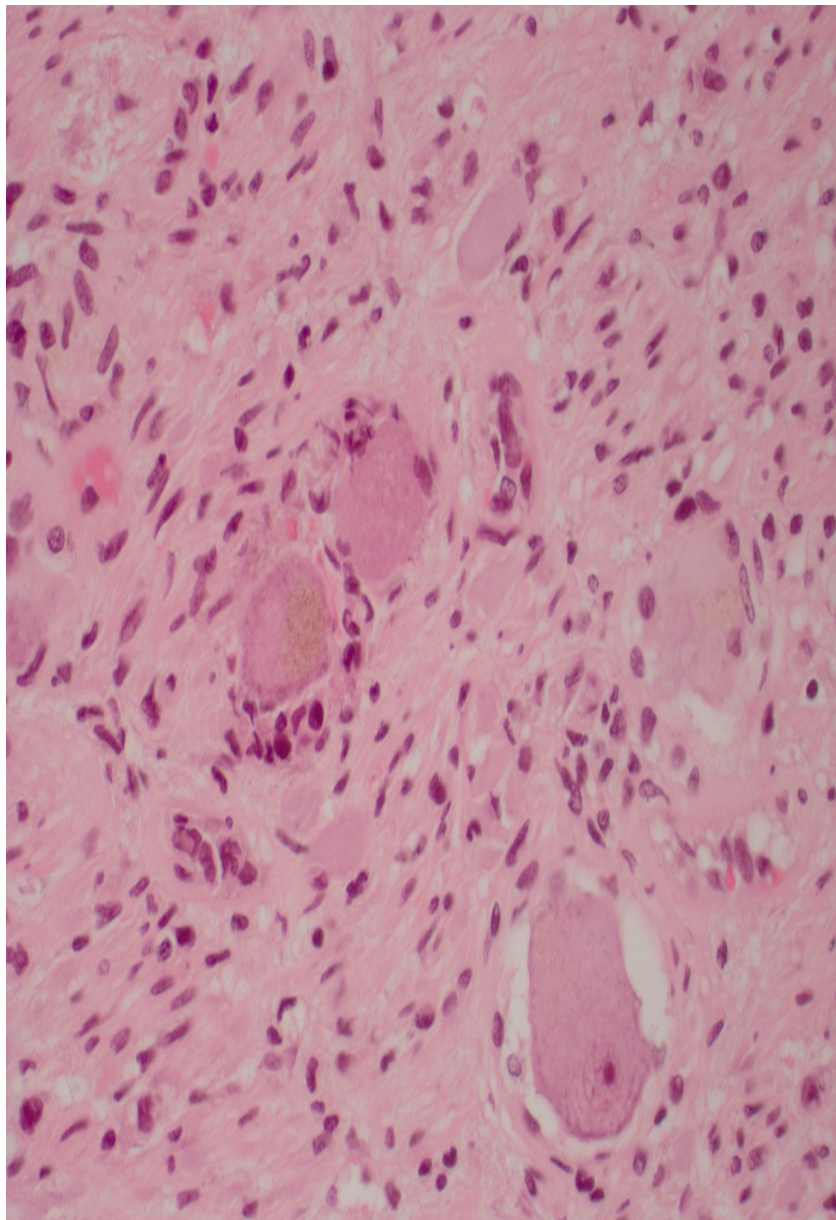
Temporal white matter – necrosis and cavitation



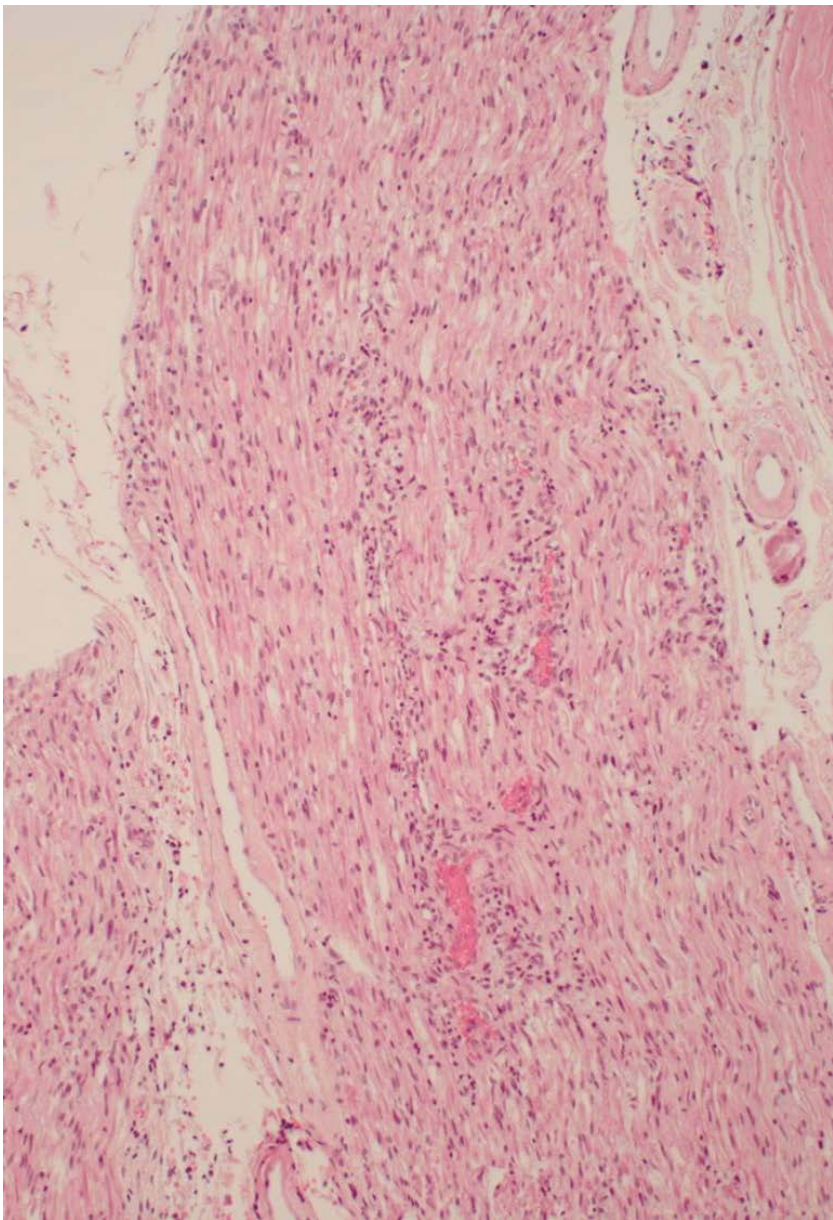
Frontal cortical lesion



Thoracic spinal cord lateral funiculus – H&E and LFB/PAS

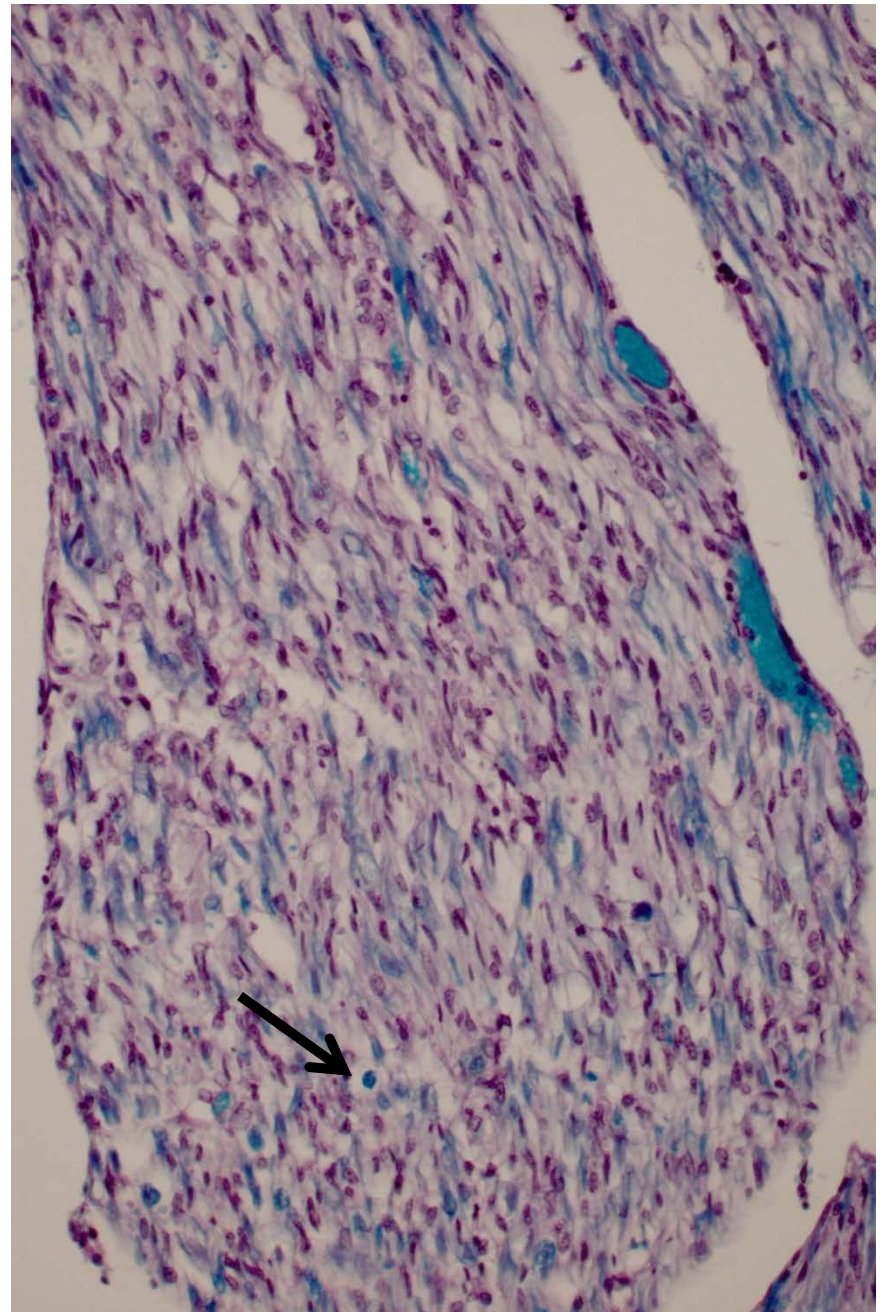
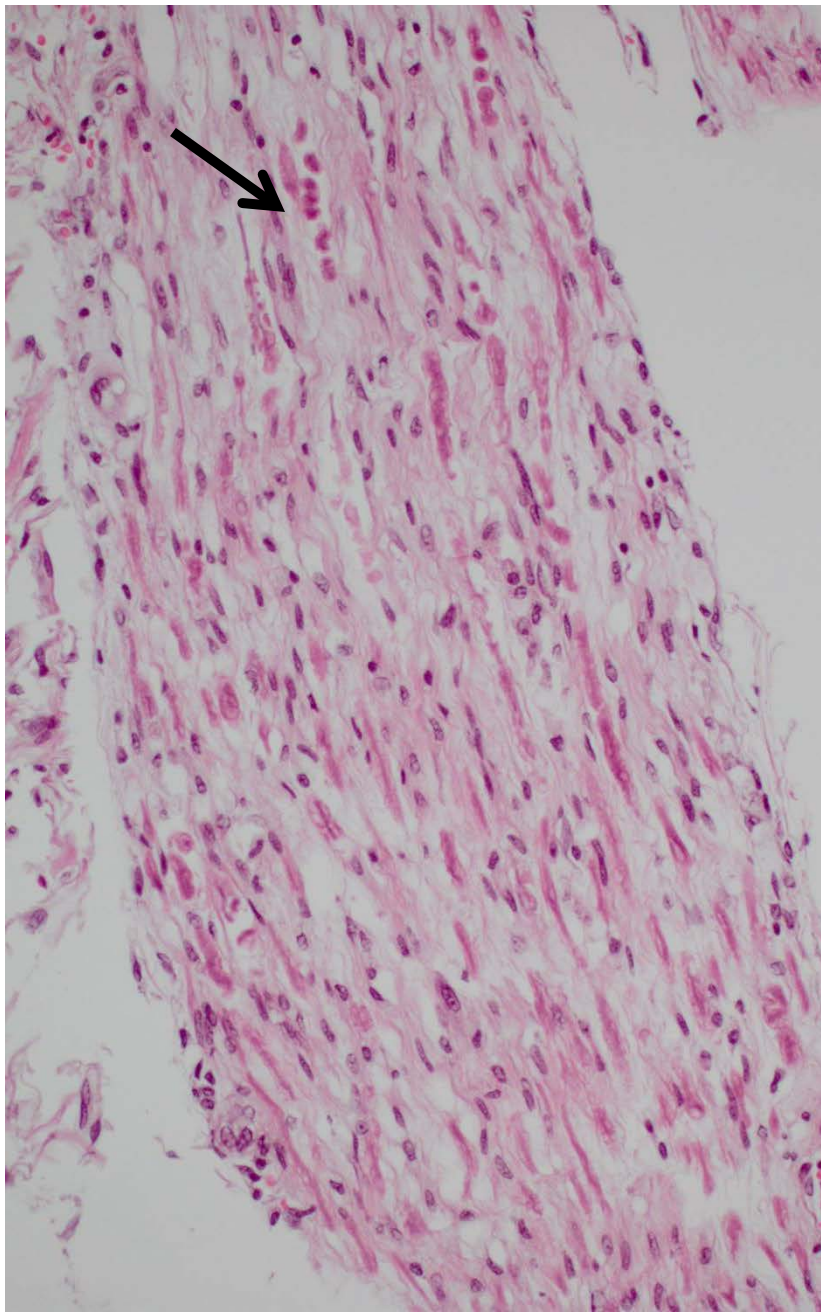


Thoracic dorsal root ganglion

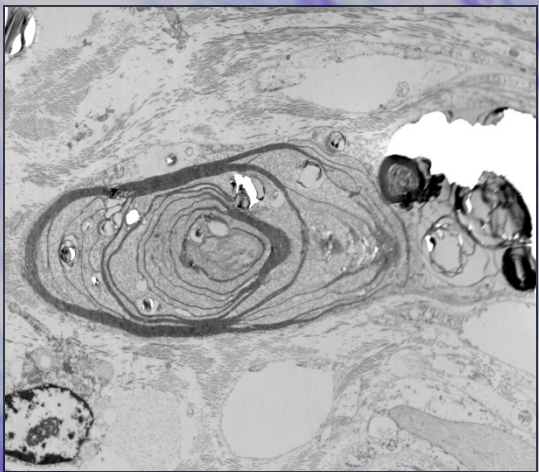
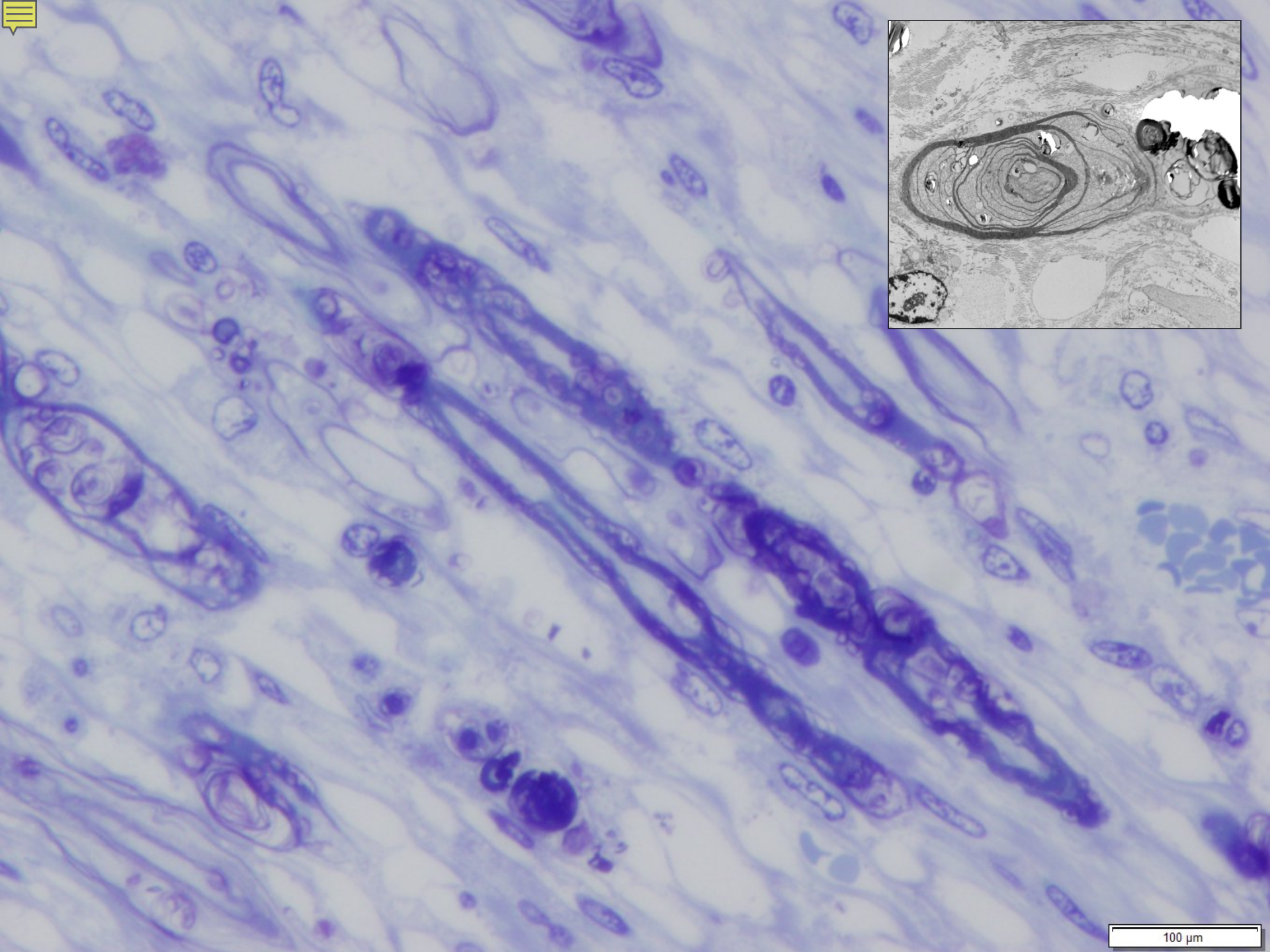


Thoracic nerve root





Thoracic nerve roots – H&E and LFB/PAS



100  $\mu$ m

# Comments



**No viral inclusions.  
VZV immunohistochemistry NEGATIVE (multiple sections).**

# Neuropathologic Diagnosis

- **Acute hemorrhagic leukoencephalitis (AHLE)/  
Weston Hurst disease with**
- **Multifocal acute demyelinating inflammatory  
polyradiculopathy (AIDP) involving cranial  
and spinal nerve roots**
- (Herpes zoster reactivation, s/p antiviral  
therapy)

# Points of Interest

- Patient's age
- Focal involvement of gray matter in AHLE
- Involvement of spinal cord in AHLE
- Cavitating lesions

**SHORT COMMUNICATION**

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Report of three cases and review of the literature

B. Pfausler, K. Engelhardt, A. Kampfl, H. Spiss, E. Taferner and E. Schmutzhard

*Department of Neurology, University Hospital Innsbruck, Innsbruck, Austria*

Emerging Infectious Diseases • www.cdc.gov/eid • Vol. 14, No. 4, April 2008

**Neuroinvasion by  
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in Acute  
Disseminated  
Encephalomyelitis**

Bernhard Stamm,\* Michael Moschopoulos,\*  
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**Acute combined central and  
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[J Neurol Neurosurg Psychiatry](#). 2004 Dec;75(12):1784-6

Original Articles

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Tanja Adamovic, MD\*, Émilie M. Riou, MD†, Geneviève Bernard, MD, MSc†,  
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**Age: 17, 28, 53**

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**Age 45**

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**Age 32**

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# Postinfectious inflammatory disorders

## Subgroups based on prospective follow-up

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NEUROLOGY 2005;65:1057-1065

**Table 5** Prognostic factors for outcome

| Variables               | Good outcome, n = 30 | Poor outcome, n = 30 | F*/OR  | p Value | OR 95% CI   |
|-------------------------|----------------------|----------------------|--------|---------|-------------|
| Onset SNS, mean (SD)    | 60.3 (12.7)          | 37.4 (16.7)          | 35.71* | <0.001  | —           |
| Age mean (SD), y        | 46.4 (18.9)          | 55.8 (16.1)          | 4.21*  | 0.045   | —           |
| Sex, M:F                | 17:13                | 9:21                 | 0.322  | 0.037   | 0.107-0.965 |
| CSF albumin, mean (SD)  | 68.3 (49.28)         | 106.5 (85.4)         | 4.33*  | 0.042   | —           |
| CSF IgG, mean (SD)      | 8.1 (5.2)            | 19.8 (17.8)          | 10.4*  | 0.002   | —           |
| Spinal cord involvement | 19/30                | 29/30                | 0.061  | 0.001   | 0.007-0.51  |
| PNS involvement         | 7/30                 | 18/30                | 0.209  | 0.004   | 0.067-0.656 |

Good outcome: final SNS score  $\geq 90$  or improvement of at least  $30^\circ$  on SNS. Poor outcome: all the other cases; we here include three patients affected by encephalitis, encephalomyelitis, and encephalomyelorradiculitis, who died.

SNS = Scripps Neurological Scale; F\* = one-way analysis of variance; OR = odds ratio; IgG = immunoglobulin G; PNS = peripheral nervous system.

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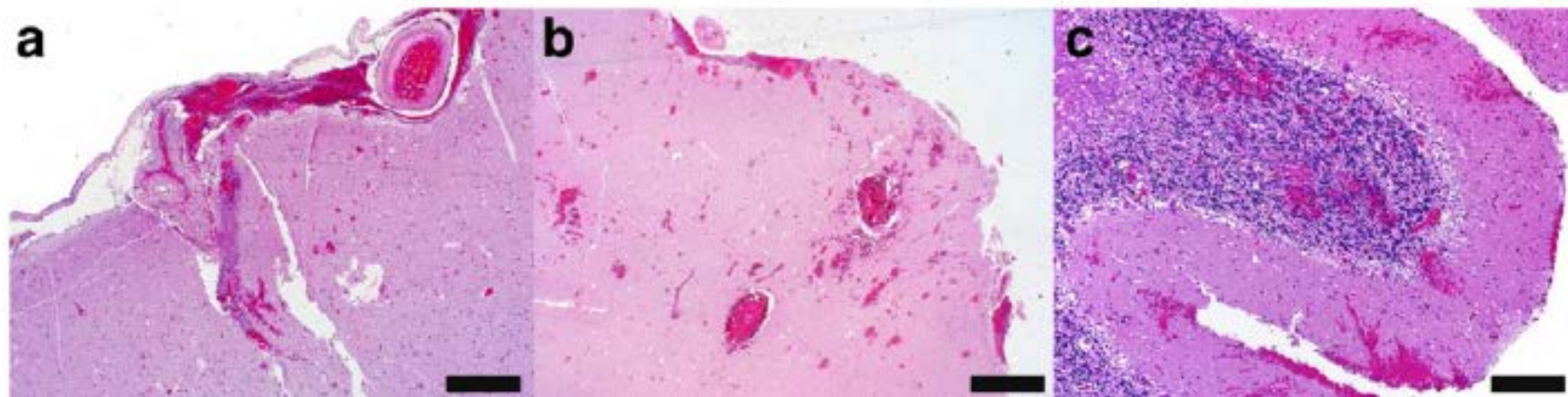
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**CASE REPORT**

**Open Access**

# Early and widespread injury of astrocytes in the absence of demyelination in acute haemorrhagic leukoencephalitis

Christopher A Robinson<sup>1\*</sup>, Reginald C Adiele<sup>2,3</sup>, Mylyne Tham<sup>2,3</sup>, Claudia F Lucchinetti<sup>4</sup> and Bogdan FGh Popescu<sup>2,3\*</sup>



# Acute varicella-zoster virus ventriculitis and meningo-myelo-radiculitis in acquired immunodeficiency syndrome

**F. Chrétien<sup>1</sup>, F. Gray<sup>1,2</sup>, M. C. Lescs<sup>1</sup>, C. Geny<sup>2</sup>, M. L. Dubreuil-Lemaire<sup>3</sup>, E. Ricolfi<sup>2,4</sup>, M. Baudrimont<sup>5</sup>,  
Y. Levy<sup>3</sup>, A. Sobel<sup>3</sup>, H. V. Vinters<sup>6</sup>**

<sup>1</sup> Département de Pathologie (Neuropathologie), Hôpital Henri Mondor, Faculté de Médecine de Créteil, Université Paris XII, F-94010 Créteil Cedex, France

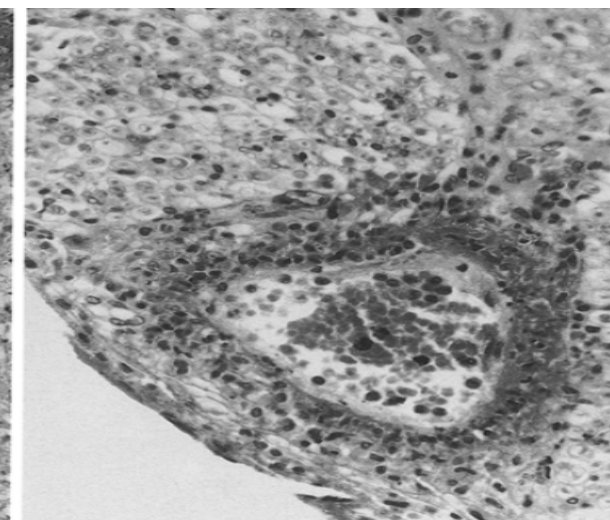
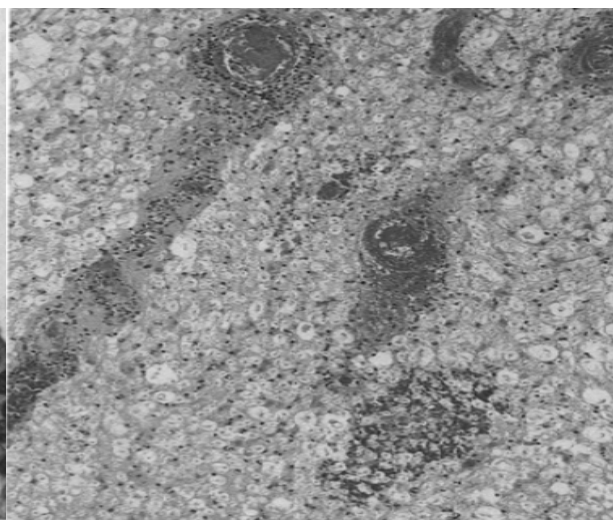
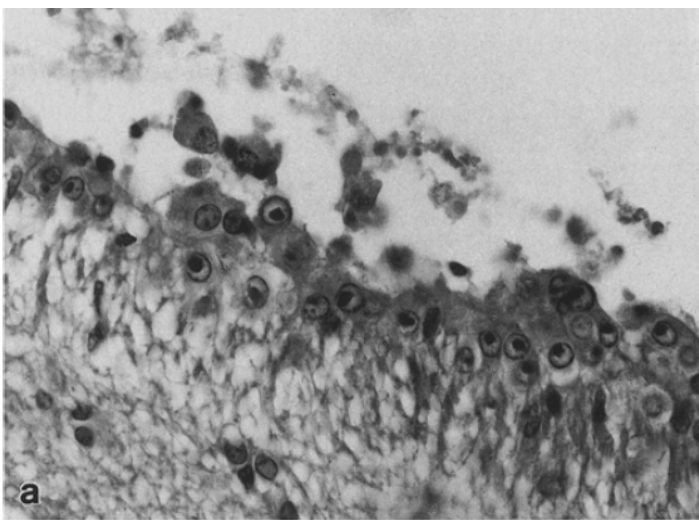
<sup>2</sup> Département de Neurosciences Médicales, Hôpital Henri Mondor, Faculté de Médecine de Créteil, Université Paris XII, F-94010 Créteil Cedex, France -

<sup>3</sup> Département d'Immunologie Clinique, Hôpital Henri Mondor, Faculté de Médecine de Créteil, Université Paris XII, F-94010 Créteil Cedex, France

<sup>4</sup> Service de Radiologie, Hôpital Henri Mondor, Faculté de Médecine de Créteil, Université Paris XII, F-94010 Créteil Cedex, France

<sup>5</sup> Service Central d'Anatomie et de Cytologie Pathologiques, Hôpital Saint Antoine, Paris, France

<sup>6</sup> Department of Pathology and Laboratory Medicine UCLA Medical Center, Los Angeles, CA, USA



**Thank you.**