Diagnostic Slide Session
American Association of Neuropathologists
June 2014, Portland, Oregan

Jane Cryan, Rebecca Gilanni, Rebecca Folkerth
Brigham and Women’s Hospital
Boston
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
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
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

Post-infectious central and peripheral nervous system diseases complicating Mycoplasma pneumoniae infection

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 Mycoplasma pneumoniae in Acute Disseminated Encephalomyelitis

Bernhard Stamm,* Michael Moschopulos,‡ Hansjoerg Hungerbuehler,* Jeannette Guarner,† Gillian L. Genrich,† and Sherif R. Zaki†

Acute combined central and peripheral inflammatory demyelination

J Katchanov, J D Lünemann, F Masuhr, D Becker, M Ahmadi, J Bösel, R Zschornerle

J Neurol Neurosurg Psychiatry. 2004 Dec;75(12):1784-6

Original Articles

Acute Combined Central and Peripheral Nervous System Demyelination in Children

Tanja Adamovic, MD‡, Émilie M. Riou, MD³, Geneviève Bernard, MD, MSc⁵, Michel Vanasse, MD⁵, Jean-Claude Décarie, MD⁸, Chantal Poulin, MD⁵, and France Gauvin, MD, MSc⁸
SHORT COMMUNICATION

Post-infectious central and peripheral nervous system diseases complicating *Mycoplasma pneumoniae* infection

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

---

Age: 17, 28, 53

---

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

Neuroinvasion by *Mycoplasma pneumoniae* in Acute Disseminated Encephalomyelitis

Bernhard Stamm,* Michael Moschopulos,* Hansjoerg Hungerbuehler,* Jeannette Guarner,† Gillian L. Genrich,† and Sherif R. Zaki†

---

Acute combined central and peripheral inflammatory demyelination

J Katchanov, J D Lünemann, F Masuhr, D Becker, M Ahmadi, J Bösel, R Zschenderlein

*J Neurol Neurosurg Psychiatry.* 2004 Dec;75(12):1784-6

---

Age: 45

---

Original Articles

Acute Combined Central and Peripheral Nervous System Demyelination in Children

Tanja Adamovic, MD, Émilie M. Riou, MD, Geneviève Bernard, MD, MSc, Michel Vanasse, MD, Jean-Claude Décarie, MD, Chantal Poulin, MD, and France Gauvin, MD, MSc
SHORT COMMUNICATION

Post-infectious central and peripheral nervous system diseases complicating *Mycoplasma pneumoniae* infection

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 *Mycoplasma pneumoniae* in Acute Disseminated Encephalomyelitis

Bernhard Stamm,* Michael Moschopulos,∗ Hansjoerg Hungerbuehler,∗ Jeannette Guarner,† Gillian L. Genrich,† and Sherif R. Zaki†

Acute combined central and peripheral inflammatory demyelination

J Katchanov, J D Lünemann, F Masuhr, D Becker, M Ahmadi, J Bösel, R Zschenderlein

*J Neurol Neurosurg Psychiatry*. 2004 Dec;75(12):1784-6

Original Articles

Acute Combined Central and Peripheral Nervous System Demyelination in Children

Tanja Adamovic, MD*, Émilie M. Riou, MD†, Geneviève Bernard, MD, MSc‡, Michel Vanasse, MD§, Jean-Claude Décarie, MD§, Chantal Poulin, MD*, and France Gauvin, MD, MSc*
# Postinfectious inflammatory disorders

Subgroups based on prospective follow-up

E. Marchioni, MD; S. Ravaglia, MD, PhD; G. Piccolo, MD; M. Furione, MD; E. Zardini, BS; D. Franciotta, MD; E. Alfonsi, MD; L. Minoli, MD; A. Romani, MD; A. Todeschini, MD; C. Uggetti, MD; E. Tavazzi, MD; and M. Ceroni, MD

**NEUROLOGY 2005;65:1057–1065**

---

### Table 5 Prognostic factors for outcome

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

Good outcome: final SNS score ≥90 or improvement of at least 30° on SNS. Poor outcome: all the other cases; we here include three patients affected by encephalitis, encephalomyelitis, and encephalomyeloradiculitis, who died.

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

## Subgroups based on prospective follow-up

E. Marchioni, MD; S. Ravaglia, MD, PhD; G. Piccolo, MD; M. Furione, MD; E. Zardini, BS; D. Franciotta, MD; E. Alfonsi, MD; L. Minoli, MD; A. Romani, MD; A. Todeschini, MD; C. Uggetti, MD; E. Tavazzi, MD; and M. Ceroni, MD

**NEUROLOGY 2005;65:1057–1065**

---

### Table 5 Prognostic factors for outcome

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

Good outcome: final SNS score ≥90 or improvement of at least 30° on SNS. Poor outcome: all the other cases; we here include three patients affected by encephalitis, encephalomyelitis, and encephalomyeloradiculitis, who died.

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

Subgroups based on prospective follow-up

E. Marchioni, MD; S. Ravaglia, MD, PhD; G. Piccolo, MD; M. Furione, MD; E. Zardini, BS; D. Franchiota, MD; E. Alfonsi, MD; L. Minoli, MD; A. Romani, MD; A. Todeschini, MD; C. Uggetti, MD; E. Tavazzi, MD; and M. Ceroni, MD

NEUROLOGY 2005;65:1057–1065

Table 5 Prognostic factors for outcome

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

Good outcome: final SNS score ≥90 or improvement of at least 30° on SNS. Poor outcome: all the other cases; we here include three patients affected by encephalitis, encephalomyelitis, and encephalomyeloradiculitis, who died.

SNS = Scripps Neurological Scale; F* = one-way analysis of variance; OR = odds ratio; IgG = immunoglobulin G; PNS = peripheral nervous system.
Early and widespread injury of astrocytes in the absence of demyelination in acute haemorrhagic leukoencephalitis

Christopher A Robinson1, Reginald C Adiele2,3, Mylyne Tham2,3, Claudia F Lucchinetti4 and Bogdan FGh Popescu2,3
Acute varicella-zoster virus ventriculitis and meningo-myelo-radiculitis in acquired immunodeficiency syndrome

F. Chrétien¹, F. Gray¹,², M. C. Lescs¹, C. Geny², M. L. Dubreuil-Lemaire³, F. Ricolfi²,⁴, M. Baudrimont⁵, Y. Levy³, A. Sobel³, H. V. Vinters⁶

¹ Département de Pathologie (Neuropathologie), Hôpital Henri Mondor, Faculté de Médecine de Créteil, Université Paris XII, F-94010 Créteil Cedex, France
² Département de Neurosciences Médicales, Hôpital Henri Mondor, Faculté de Médecine de Créteil, Université Paris XII, F-94010 Créteil Cedex, France
³ Département d'Immunologie Clinique, Hôpital Henri Mondor, Faculté de Médecine de Créteil, Université Paris XII, F-94010 Créteil Cedex, France
⁴ Service de Radiologie, Hôpital Henri Mondor, Faculté de Médecine de Créteil, Université Paris XII, F-94010 Créteil Cedex, France
⁵ Service Central d'Anatomie et de Cytologie Pathologiques, Hôpital Saint Antoine, Paris, France
⁶ Department of Pathology and Laboratory Medicine UCLA Medical Center, Los Angeles, CA, USA
Thank you.