AMSER Case of the Month
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54-year-old presents with worsening left-sided paresthesias and numbness

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Patient Presentation

- **HPI**: 54-year-old female presented to the ED for evaluation of progressively worsening left-sided paresthesias and numbness over the past 3 months. Affected area included the entire left upper extremity from the level of the axilla to the digits.

- **PMHx**: Herpes zoster 3 months prior; developed a painful, erythematous maculopapular rash on the left side of her back extending to the left breast. Treated with valacyclovir and gabapentin.
Patient Presentation

- **Physical Exam**: LUE showed decreased sensation to light touch, increased pinprick sense circumferentially from the axilla to fingers. CN V showed decreased sensation to light touch, temperature, and vibratory sense on left face with splitting of the midline.

- **ROS**: (+) LUE weakness, LUE numbness, LLE numbness, urinary incontinence, intermittent left occipital headaches
  
  (−) bowel incontinence, photophobia, nausea, dysarthria, dysphagia, vision changes
Pertinent Labs

- **CSF**: elevated leukocytes, normal protein levels
- **B12**: elevated
- **AQP4 antibody titer**: negative
What Imaging Should We Order?
### ACR Appropriateness Criteria

**Variant 2:** Chronic or progressive myelopathy. Initial imaging.

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<tr>
<th>Procedure</th>
<th>Appropriateness Category</th>
<th>Relative Radiation Level</th>
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<td>MRI spine area of interest without and with IV contrast</td>
<td>Usually Appropriate</td>
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<td>CT myelography spine area of interest</td>
<td>May Be Appropriate</td>
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<td>CT spine area of interest with IV contrast</td>
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<td>Arteriography spine area of interest</td>
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This imaging modality was ordered.
Findings (unlabeled)

Sagittal T2
Sagittal STIR
Sagittal T1
Sagittal T1 Post
Findings (unlabeled)
Findings (unlabeled)

Coronal T2
Sagittal T2, STIR, T1, and T1 post-contrast imaging sequences of the cervical spine showing a T2/STIR hyperintense lesion (red arrows) in the upper cervical spine at the level of C2 with mild cord enlargement (red arrow) on T1 and enhancement (red arrow) on post-contrast images.
Axial T2, STIR, and T1 post-contrast imaging sequences of the cervical at the level of the dens and C1 lateral masses showing a T2/STIR hyperintense lesion (red arrows) with enhancement (red arrow) on post-contrast images.
Coronal T2 imaging sequence of the cervical spine showing a T2 hyperintense lesion (red arrow) in the upper cervical spine at the level of C2.
Final Dx:

Varicella Zoster-Induced Transverse Myelitis
Transverse Myelitis

MRI

- Variable appearance
  - 40% of clinical transverse myelitis have no MRI abnormalities
- Signal characteristics:
  - T1: Iso-/hypo-intense
  - T2: Focal hyperintense
  - STIR: Hyperintense
  - Post-contrast: Variable (none, patchy, diffuse, peripheral)
- Lesion characteristics
  - Variable size, usually occupy 3-4 spinal segments and takes up ⅔ of the cross-sectional area
  - Variable cord enlargement
- Cord enlargement and enhancement can resolve with clinical improvement
Case Discussion

Epidemiology of Varicella Zoster Virus (VZV)

- Over 300,000 cases of herpes zoster (shingles) in the US per year
- Incidence is 8-10x higher in patients over 60 years of age than in younger patients
- Varicella-related myelopathy and myelitis is reported in only 0.3% of VZV patients
Case Discussion

Typical Presentation

- Onset of myelitis symptoms ranges from **acute to subacute** (up to 2 months) following herpes zoster rash eruption.
- More frequently seen in immunocompromised patients; immunocompetent patients tend to have better recovery.
- Most commonly involves **thoracic dermatomes**. Presents with **hypoesthesia, paraparesis, and neuropathic pain** on the **ipsilateral** side.
- Lower motor dysfunction, especially sphincter dysfunction, **urinary incontinence**, and impaired ambulatory function are common sequelae.
Case Discussion

Indicated Treatment

- Antiviral + glucocorticoid
  - Acyclovir/valacyclovir and tapered methylprednisolone given simultaneously
  - Gabapentin for neuropathic pain

This patient was treated with **valacyclovir**, **gabapentin**, and high-dose **methylprednisolone IV** inpatient, and was given **prednisone PO** at discharge to take at home.
References


