Guillain-Barré Syndrome in a Patient with Pneumococcal Meningitis

An Uncommon Complication of a Common Infection
ACP Wisconsin, September 2017

Jesse Maupin, MD (PGY-2)
University of Wisconsin Hospital and Clinics
Internal Medicine
Patient Presentation

HPI: Unvaccinated 23 M with no significant PMH presents with headache, nausea, and vomiting.

HPI:
7 days of progressive headache, confusion, neck pain, fever, nausea, and vomiting.

PMH, PSH, FH, Medications
None reported

Social History
Patient lives in rural WI in Amish community
No previously documented healthcare encounters
Works as a carpenter
No smoking, alcohol, IVDU, sexual activity, or sick contacts
Drinks well water
Review of Systems
(+): Fever, Headache, Neck Stiffness, Confusion, Vomiting
(-): Trauma, Diarrhea, Cough, Dyspnea

**EXAM**

- T 37.8°C, HR 76, RR 16, BP 135/58 mmHg, SpO2 95% RA
- GEN: Somnolent, arousable to noxious stimuli, moves all 4 extremities spontaneously
- Neck: *Nuchal rigidity* is present, with positive Brudzinski’s sign
- Neuro: Normal tone, reflexes 1+ throughout, bilateral leg strength diminished at 3/5
- Skin: No rash
Labs & Imaging

Chemistries
AST 22
ALT 22
Alk Phos 74
Total Bilirubin 1.0
Total Protein 7.8
Albumin 4.0
Calcium 9.5

CSF
Protein 275.9
Glucose <50
Lactate 10.4
Nuc. Cells 9,644
PMNs 98%

CBC Differential
87% Neutrophils
5% Lymphocytes
3% Monocytes

CSF Gram Stain: Gram +ve cocci
CSF and Blood Cultures: Positive for Streptococcus pneumoniae

Non-Contrast Head CT
No evidence of infarct, abscess, or ventricular enlargement.
Assessment

Patient:
- Bacteremic pneumococcal meningitis in an unvaccinated individual within a community with impaired herd immunity
- Unclear if bacteremia preceded CNS invasion
- No foci of infection identified
- Penicillin-sensitive pathogen

More Broadly:
- CNS invasion theorized via cribriform plate transit
- No correlation between non-immunized status and pneumococcal disease.
Hospital Course:
- Ceftriaxone, Vancomycin, Dexamethasone
- Febrile, but rapid recovery of mental status
- Developed weakness and numbness of legs → areflexia and flaccid paralysis
- Neurogenic bladder and bradycardia
- EMG findings consistent with a demyelinating polyneuropathy
- Cessation of ascending paralysis after IVIG
- Gradual improvement in leg strength
Guillain-Barré Treatment

Prevention
- Antecedent Infection

Supportive Care
- Respiratory Support
- Dysautonomia

Disease Modifying
- Plasma Exchange
- IVIG

Campylobacter jejuni
Streptococcal meningitis is very common
Guillain-Barre is a rare complication
GBS is typically seen after other infections
Combined myelin-axonal degradation
IVIG has a level 1 evidence rating
Acknowledgements

Dr. Jeremy Smith, MD
Dr. Sean O’Neill, MD
Internal Medicine

Dr. Bennett Vogelman, MD
UWHC IM Program Director

Dr. Nicholas Stanek, MD
Neurology

Dr. Rachna Unnithan, MD
Dr. Justin Bucci, MD
Dr. Benjamin Ciske, MD
Dr. Saad Arain, MD
Siddique Akram, MS4


3. Imohl M, Moller J, Perniciaro S, van der Linden M, Aktas O. Pneumococcal meningitis and vaccine effects in the era of conjugate vaccination: Results of 20 years of nationwide surveillance in Germany. BMC Infectious Diseases. 2015;15(1)


Thank You

Questions?
Follow-up

- 7 days post-discharge: Persistent bilateral lower extremity paralysis, full neurogenic bladder
- 47 days post-discharge: Residual weakness and fatigue, only nocturnal straight caths
- Did not return for neurology follow-up
Re-Assessment

Unilateral facial nerve palsy

Autonomic dysfunction

Electrodiagnostic abnormalities consistent with GBS

Progressive, symmetric leg weakness with mild sensory loss

Areflexia in affected limbs

Inflamed peripheral nerve