11//20 Morning Report with @CPSolvers

Case Presenter: *Gurbani Kaur* ***Case Discussants***: *Ramla Kasozi (@RamlaKasoziMD) and Norma Dyer (@MedicalChef)*

CC: High fever.

HPI: 28yM previously healthy presents to ED in August w/4d of body aches, dry cough and fever (103.7°F). Associated w/new bifrontal, headache and bilateral ear pain.

2 days prior started w/cefuroxime w/no improvement. No sore throat, rash, diarrhea, neck stiffness and photophobia. Prior to Covid19.

2 weeks prior had camped through Northern California in wooden trails and swam through fresh water lakes. No one became ill on trip.

PMH: None

Meds: None

Fam Hx: None

Soc Hx: Lives in Northern California. Works in the technology sector.

Health-Related Behaviors: No smoking or drug use. Occasional alcohol.

Allergies:None

Vitals: **T**: 38.8°C **HR**:88 **BP**:101/39 **RR**:22 **SpO_2**:95% RA
Exam:
Gen: well developed, in respiratory distress and ill appearing.
HEENT: no oropharyngeal erythema or exudate. Tympanic membrane unremarkable. Neck w/no lymphadenopathy. JVP not elevated.
CV: RR, no murmurs, rubs or gallops.
Pulm: tachypneic. No acc. muscle use. B/L crackles in lower ⅓ of lung fields.
Abd: No hepatosplenomegaly.
Neuro: Alert but fatigued appearing. Answers appropriately.
Extremities/Skin: No joint swelling or redness. No rashes.

Notable Labs & Imaging:
Hematology: WBC:12.6 (59% N, 10% L, 21% bands, 5% mono, 3% eos) Hgb:19.6 Plt: 47
Blood smear: few platelets, left shift w/ multiple myelocytes, large lymphoid cells w/ basophilic cytoplasm (immunoblast)

Chemistry:Na:130 K:4 Cl:101 CO2:20 BUN:30 Cr:1.9
AST:129 ALT:106 Alk-P:43 T. Bili: pending** Albumin:2.1 TP: 5.1
Ferritin: 8374 Fibrinogen: 294 LDH: 575
UA unremarkable.
HIV neg. Cultures neg. Respiratory panel neg. Legionella neg. Mycoplasma IgM neg. Histoplasma, Coccidioides neg. Q fever: neg. C. pneumoniae, C. Psittaci: Neg.

Imaging:
CXR: Diffuse and scatter alveolar damage, prominent interstitial markings and hilar prominence.
CTA: atelectasis and consolidation compatible w/diffuse alveolar damage. Few ground glass, interlobar septal thickening w/superimposed pleural edema + large pleural effusion.
BAL: Gram stain: no PMNs, no organisms, Cultures: scant normal respiratory flora

Started with azithromycin and ceftriaxone. Rapidly decompensated w/worsening hypoxia → intubation and pressors. ECMO initiated.
TTE: EF 35%, moderately decreased in LV function.
Serology: **Hantavirus pulmonary syndrome.** Made rapid clinical recovery.

Problem Representation: 28 y/o M previously healthy p/w body aches, cough and high fevers, found to have in imaging diffuse alveolar damage and pulmonary edema w/deranged renal-liver-heme abnormalities. Acutely decompensated requiring intubation and pressors.

Teaching Points (Travis):
- Develop a Problem representation and deploy a schema comparing them to the patient's illness scripts to see what matches.
- Define what symptoms are key features and what are just bystanders.
- Who is patient and what is the time course? Acute, subacute, or chronic.
- Find the center of gravity of the case base on either the physical exam or other parts of the history or the labs.
- Whenever you see bands you should move towards a bacterial infection. The Bone Marrow is moving them out as fast as it can.
- Relative erythrocytosis vs absolute: Concentration from third spacing like in pancreatitis.
- If absolute erythrocytosis, is it primary or reactive from hypoxia (smoking exposure).
- Are the low plts from destruction (MAHA) or decreased production from a bone marrow problem (look for other cell lines that are down).
- Seeing no bacteria on BAL should shift your dx
- Given the fact there is so much negative data, these atypical infections move up on our differential
- Hanta Virus is one of the viral infections that can cause a capillary leak syndrome causing hemoconcentration
- When **you have eliminated the impossible**, whatever remains, however improbable, must be the truth.- Daniel M. 2020