06/28/24 Morning Report with @CPSolvers

"One life, so many dreams" Case Presenter: Lizzie (@) Case Discussants: Reza (@DxRxEdu) and Rabih (@rabihmgeha)

CC: 38 yo female with left sided sharp chest pain, SOB, fevers & and chills.

HPI:
3 week progressive history of symptoms
Chest pain worse on inspiration and exertion & non-productive cough.
Generalized malaise, weakness, some nausea & decreased PO intake. No sick contacts or recent preceding URI.
Presented with O2 sats of 88% on RA.
Further history: Tooth abscess 1 month prior, only took natural remedies and no antibiotics

PMH:
None

Meds:
Tylenol for fevers

Fam Hx:
Unremarkable
Soc Hx:
Lives w/husband. Works at plastic manufacturing company (for last 6 months - no PPE)
Health-Related Behaviors:
Prior smoker (30 py, quit 8 years ago)
Allergies: None

Vitals: Temp: 102.4, HR: 131, BP: 121/59; RR: 28; O2: 88% on RA
Exam: General: No distress. No rash or lymphadenopathy
HEENT: Good dentition. Normal pupils.
CVS: Normal
Pulm: Decreased left lower lobe breath sounds
Abdominal & Neurological: Normal
Extremities & skin: Normal

Notable Labs & Imaging:
Hematology: WCC: 24.7 (PMNs 91%). Hb 11.5. Plat 513
Chemistry: Normal U&E
Total protein 5.5, albumin 2.6, rest wnl
LDH 316. Lipase 4
ABG: pH 7.39, CO2 43 Po2 40, lactate 2.1;
Normal coagulation studies
Microbiology: Resp viral panel: negative. HIV: negative. Negative testing for S.pneumo & Legionella. BC negative
Imaging:
CXR: Left pleural effusion w/complete atelectasis
CT chest: Large multi-loculated effusion, likely suggestive of left empyema
U/S neck: Negative for internal jugular thrombus
Thoracentesis:
Large, multiple tubes needed. Turbid color w/ frank pus. pH 8.54. WBCs 139000 (98% PMNs). 3500 RBCs. Protein 3.3. Glu < 15. LDH > 1200
Pleural culture: *Fusobacterium*

Final Diagnosis: Left **Empyema** secondary to *Fusobacterium*

Problem Representation: 38 yo female: previously well, now presenting w/subacute inflammatory hypoxemia, found to have a left empyema on CT with a pleural culture growing *fusobacterium*

Teaching Points (Ibrahim):
- **Chest pain** → something in thorax hurts → very broad (MI to MSK) → often benign in 90%
- **SOB** → more acute/severe → dysfunction inside chest viscera (SERIOUS) → especially if severe → benign: deconditioning, panic attack
- **Hypoxemia** → something wrong between alveolus and BV (molecular)
  - **Alveolus**: collapse vs filled, **BV**: thrombus vs shunting
- **Fever/chills + hypoxemia** → inflammatory thoracic visceral dz (e.g. inflammation of lung parenchyma, inflammation of BVs secondary to PE)
- **Young woman w/ no PMH** → immune status (HIV), autoimmune (SLE), occupational exposure (pneumonitis, may make someoin vulnerable to infx)
- **Empiric abx** → septic shock/sepsis, neutropenia, decompensated cirrhosis
- **Pleura**: *fluid* (high pretest probability if infection → **empyema** till proven otherwise → cover anaerobes if possibility of abscess/infx in pleura as no air is there → **Pip/tazo OR amp/sulbactam + gram +ve coverage (MRSA nares swab)**; consider **pleural edema/effusion** → can collapse alveoli if big; **parenchymal pleural dz** → pneumonia, HF, etc.) vs *air*
- Consider **CT angio** as nxt step (esp. If no contraindication)
- **Empyema** → can develop following long-standing pneumonia → get a thoracentesis/may have to get a chest tube (source control) → most patients can't identify organism
- **Leukocytosis + thrombocytosis** —> consistent w/ infx, subacute inflammation (thrombocytopenia in acute infx)
- **High pH in pleural fluid on thoracentesis** → lowers pretest prob for an empyema; may still be empyema so Tx until proven otherwise → 4 WKS of abx broad spectrum
- **Fusobacterium**: necrophorum (in healthy and young) → pulmonary/oral dz; nucleatum (associated w/ GI cancer) → abdominal dz