02//25 Morning Report with @CPSolvers

"One life, so many dreams" Case Presenter: Rahul (@RahulPottabath1) Case Discussants: Reza (@) & Rabih (@)

CC: 44 yo W hospitalized with fever

HPI:
Patient was admitted 3 weeks ago for fever with B/L costovertebral angle tenderness, found to have ESBL pyelonephritis, resolved with levofloxacin. On admission, CBC: marked leukocytosis (90k) with 70% blasts and anemia, thrombocytopenia. Bone marrow: AML, and she was started on induction therapy 2 weeks into her hospital stay with 7+3 (cytarabine and idarubicin), 3 days after chemo developed progressive pancytopenia, received intermittent transfusions. 5 days after chemotherapy she developed a fever 38.8, at which point the nurse called you. Besides the fever, vitals stable. No cough, diarrhea, headache, runny nose, sore throat, abdominal pain or dysuria.

PMH:
T2DM

Meds: insulin, acyclovir, fluconazole, chemotherapy, vancomycin, cefepime

Fam Hx: DM

Soc Hx: from Mexico. Located in Houston now

Health-Related Behaviors: no substance use

Allergies: none

Vitals: T: 101 **BP:** 130/70 **RR:** 14 **HR**: 95 **Sat:** 100% on RA
Exam: Gen: alert and oriented
HEENT: wnl **Neck**: wnl **CV:** wnl **Pulm:** wnl **Abd:** wnl **Neuro:** wnl **MSK:** wnl

Notable Labs & Imaging:
Hematology:
WBC: 0.4 Hgb: 7.9 Plt: 15k
Chemistry
BMP normal
Alb 2.8, Tbili 0.7, ALT 14, AST 13, ALP 100
HIV neg, quantiferon gold: negative
COVID/FLU/RSV neg
CXR without abnormality
Urinalysis without hematuria pyuria or proteinuria
Follow up:
She develops multiple tender erythematous papules and plaques with some scattered pustules on the anterior chest that spread centrifugally to the upper abdomen, bilateral upper limbs, neck, scalp, and ears.
BCx no growth, continues fevers, Urine cx also neg, cefepime broadened to meropenem
Topical steroids trialed without much improvement
Dermatology consultation: no bacteria, fungi, acid-fast bacilli seen on pathology stains or from cultures sent from the biopsy.
Staining for CMV/EBV neg.
Pathology without evidence of leukemic invasion, however neutrophils were seen in the dermis. The upper dermis was edematous with scattered macrophages and reactive fibroblasts noted. With this, a diagnosis was made and treatment initiated.
The patient's rash improved promptly after systemic steroids, no more fever spikes. Rash was gone in 1 week. Discharged 2 weeks later after improvement in blood counts. Would show graph chart to show rapid resolution of fevers.
Dx Sweet's syndrome from AML

Problem Representation: 44 yo W hospitalized with fever, diagnosed with AML and developed progressive pancytopenia. She developed multiple tender eythematous papules and plaques with some scattered pustules on the anterior chest that spread centrifugally to the upper abdomen and upper limbs. Tissue biopsy with neutrophils were seen in the dermis.

Teaching Points(Khashayar):
Framing the Patient
Importance of follow through with subsequent signs and symptoms that may develop -> The initial diagnosis trap
Diagnosis in the context of background processes -> Presentations of old disease vs unrelated process vs complication of therapies
Neutropenic fever *Plus+*
Fever emergency -> Fever in patient with cirrhosis, fever alone in patient with neutropenia -> collecting whatever you need in 5 mins and start antibiotics ASAP!!! Then start working the patient.
Abx choice -> gram negative coverage in everyone, gram positive coverage based on risk profile -> indwelling lines, skin and soft tissue, pneumonia -> the main risk profile here is what lives on her body -> but dont forget external elements -> TB, endemic infections, reactivation of infections
What else is going on? Focus of ascending pyelonephritis -> BC, UC, abx, CT-Chest,
head to toe examination -> any potential source of infection should be identified even the smallest of skin infections -> Spot Evaluation => a snapshot of the whole picture, importance of serial evaluation -> Hidden processes -> the lack of neutrophils may hide a lot of processes because the inflammation processes is impaired
Antibody test in the setting of immunocompromised patient -> similar to impaired inflammatory processes the results of serologic tests may be unreliable
Nodular rash
Find the center of gravity -> systemic process -> metastatic process to the skin and Dermis -> what does that? -> granulomatose infections (crypto, blasto, molds(Fusarium)) , cancers are rare (Leukemia Cutis being the exception) -> if leukemia is the case it means its breaking through the chemo)
Sweet Syndrome hypothesis
acute febrile neutrophilic dermatosis -> Hypersensitivity reaction and Cytokine dysregulation -> associated with Drug reactions, AML, Pregnancy, IBD, infections dense neutrophilic infiltrate on biopsy -> a diagnosis of exclusion -> how much data do we need to start treatment? -> high quality skin biopsy and exclude infection in the chest , response to treatment , find a trigger that explains it