Interesting Cases in Infectious Diseases

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All pictures are from clinical practice

Disclosures

- Kristine A Scordo, PhD, RN, ACNP-BC, FAANP has no financial relationships with commercial interests to disclose
- Any unlabeled/unapproved uses of drugs or products referenced will be disclosed

Objectives

- Correctly interpret various diagnostic testing in infectious diseases
- Discuss identification of various infectious diseases
- Discuss treatment measures for various infectious diseases

Case Study

- A 67-year-old female presents to ED with c/o frequent urination which is “chronic.” She denies fever, flank pain, chills, but has some frequency. She states she knows she has a UTI and insists on being treated, because her “doctor” always does. She was told that she has “chronic UTI”
- She has pain with sexual intercourse and (+++) vaginal dryness
- She has 6 Ucxs during the last 6 months and the dysuria – frequency “ does not go away…”
- Her urinalysis showed +small leucocyte esterase, (-) nitrites, 5-10 wbc/hpf
- Her urine cx is as follows…..

URINE UNSPECIFIED

CULTURE RESULTS

10,000 - 100,000 CFU/ML ENTEROCOCCUS FAECIUM Infection Prevention Alert

CULTURE RESULTS

Organisms present that do not warrant identification and susceptibility per current Evidenced Based Guidelines.

CULTURE RESULTS

Tested at Bethesda Oak Laboratory 619 Oak Street 45206

REPORT STATUS

03/25/2016 FINAL REPORT

ORGANISM

ENTEROCOCCUS FAECIUM

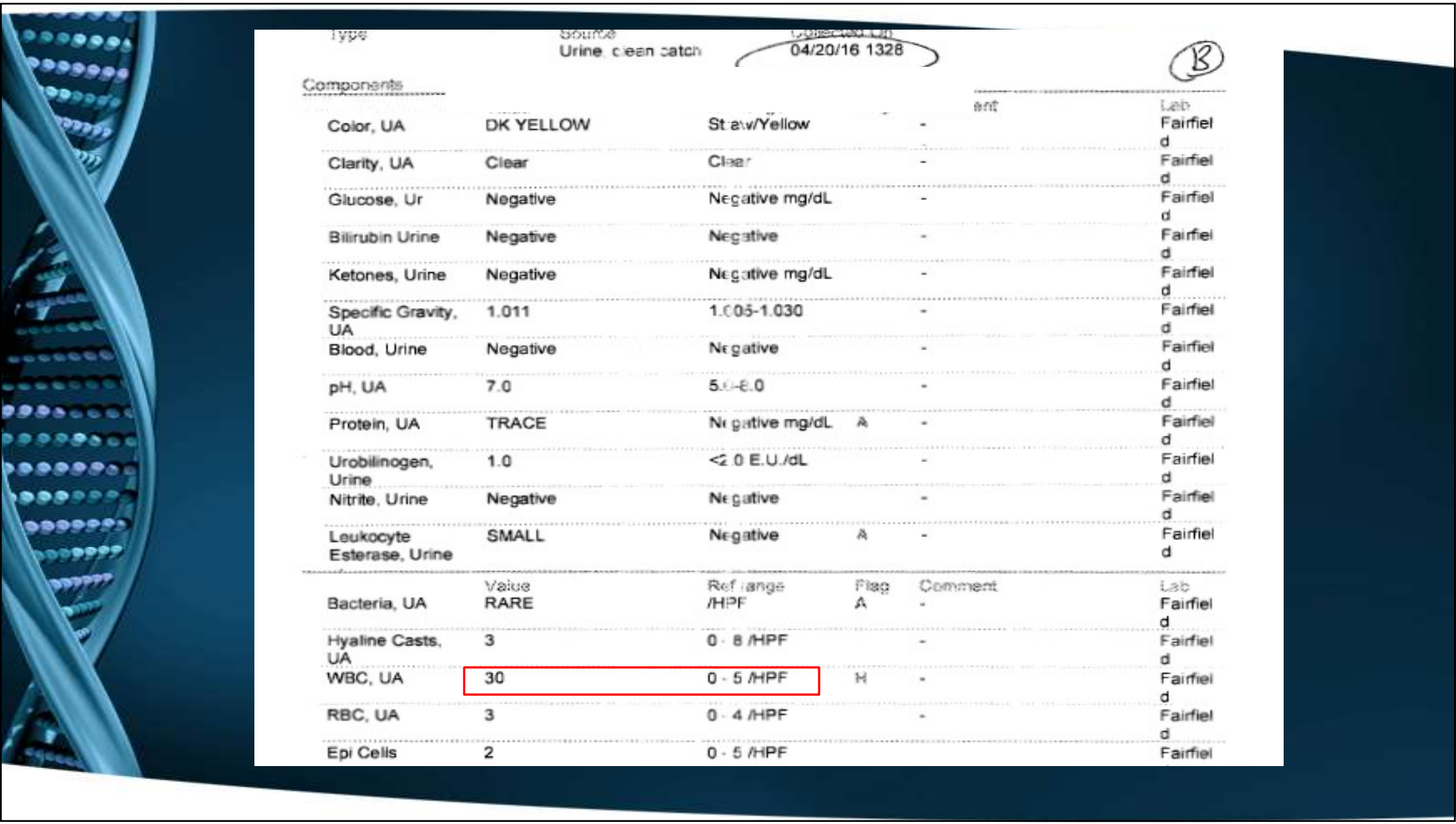
Culture & Susceptibility

ENTEROCOCCUS FAECIUM

Antibiotic		Sensitivity	Microscan	Status
Ampicillin		Resistant	>8 RESISTANT	Final
	Method:	MIC		
Ciprofloxacin		Resistant	>2 RESISTANT	Final
	Method:	MIC		
Daptomycin		Sensitive	4 SUSCEPTIBLE	Final
	Method:	MIC		
Levofloxacin		Resistant	>4 RESISTANT	Final
	Method:	MIC		
Linezolid		Sensitive	2 SUSCEPTIBLE	Final
	Method:	MIC		
Nitrofurantoin		Sensitive	<=32 SUSCEPTIBLE	Final
	Method:	MIC		
Tetracycline		Resistant	>8 RESISTANT	Final
	Method:	MIC		
Vancomycin		Resistant	>16 RESISTANT PLEASE NOTE VANCOMYCIN RESISTANCE	Final
	Method:	MIC		

Comments ENTEROCOCCUS FAECIUM (MIC)
10,000 - 100,000 CFU/ML ENTEROCOCCUS FAECIUM Infection Prevention Alert

From clinical practice



Type Source Collected On
Urine, clean catch 04/20/16 1328

B

Components

Color, UA	DK YELLOW	Straw/Yellow		-	ent	Lab Fairfield
Clarity, UA	Clear	Clear		-		Fairfield
Glucose, Ur	Negative	Negative mg/dL		-		Fairfield
Bilirubin Urine	Negative	Negative		-		Fairfield
Ketones, Urine	Negative	Negative mg/dL		-		Fairfield
Specific Gravity, UA	1.011	1.005-1.030		-		Fairfield
Blood, Urine	Negative	Negative		-		Fairfield
pH, UA	7.0	5.0-8.0		-		Fairfield
Protein, UA	TRACE	Negative mg/dL	A	-		Fairfield
Urobilinogen, Urine	1.0	<2.0 E.U./dL		-		Fairfield
Nitrite, Urine	Negative	Negative		-		Fairfield
Leukocyte Esterase, Urine	SMALL	Negative	A	-		Fairfield

	Value	Ref range	Flag	Comment	Lab
Bacteria, UA	RARE	/HPF	A	-	Fairfield
Hyaline Casts, UA	3	0 - 8 /HPF		-	Fairfield
WBC, UA	30	0 - 5 /HPF	H	-	Fairfield
RBC, UA	3	0 - 4 /HPF		-	Fairfield
Epi Cells	2	0 - 5 /HPF			Fairfield

You would do which of the following?

- Give her a 7-day supply of ciprofloxacin (Cipro)
- You put a PICC line and give 10 days of Daptomycin
- You give a 7 day course of Linezolid
- Give her a 5-day supply of trimethoprim/sulfamethoxazole (Bactrim)
- Provide reassurance and
  - a trial of vaginal estrogens
  - urologic studies to rule out overactive bladder
  - Uqura®

Factoids

- Frequently patients are misdiagnosed as “chronic UTI” when, in fact, is asymptomatic bacteriuria
- Patients are treated with multiple courses of abx-→ MDR / C.diff / adverse effects / frustration / increased in the healthcare costs---→ BAD QUALITY CARE
- Dysuria DOES NOT always means UTI--→ menopause / overactive bladder / local candida dermatitis ---→ TAKE A GOOD HISTORY!
- Pyuria DOES NOT always means UTI
- Malodor DOES NOT always means a UTI

Factoids

(+) Nitrites DOES NOT ALWAYS means a UTI--→ it tells you that you have bacterias in the urine only (may be just colonizers). Besides, an infection due to Enterococcus will NOT give you positive Nitrites.

Always look @the WBCs--→ if there is NO pyuria---> there is NO UTI (regardless of the UC)

- 90 yo female admitted for confusion
- Found to have (+) pyuria and (+) Nitrates
- Can't say if she has dysuria because she has profound dementia
- Found also to have AKI over chronic due to severe dehydration
- The family says that " she usually gets confused when she has a UTI….and DEMANDS abx…".
- She is given IV meropenem and generous IVFs overnight
- The next morning the patient is back to her baseline and more reactive.
- The next morning the daughter tells you: "… I told you, she improves always with IV Abx….".

Altered mental status and UTI in the elderly

IV. Should ASB Be Screened for and Treated in Functionally Impaired Older Women or Men Residing in the Community, or in Older Residents of Long-term Care Facilities?

Recommendations

1. In older, community-dwelling persons who are functionally impaired, we recommend against screening for or treating ASB (*strong recommendation, low-quality evidence*).
2. In older persons resident in long-term care facilities, we recommend against screening for or treating ASB (*strong recommendation, moderate-quality evidence*).

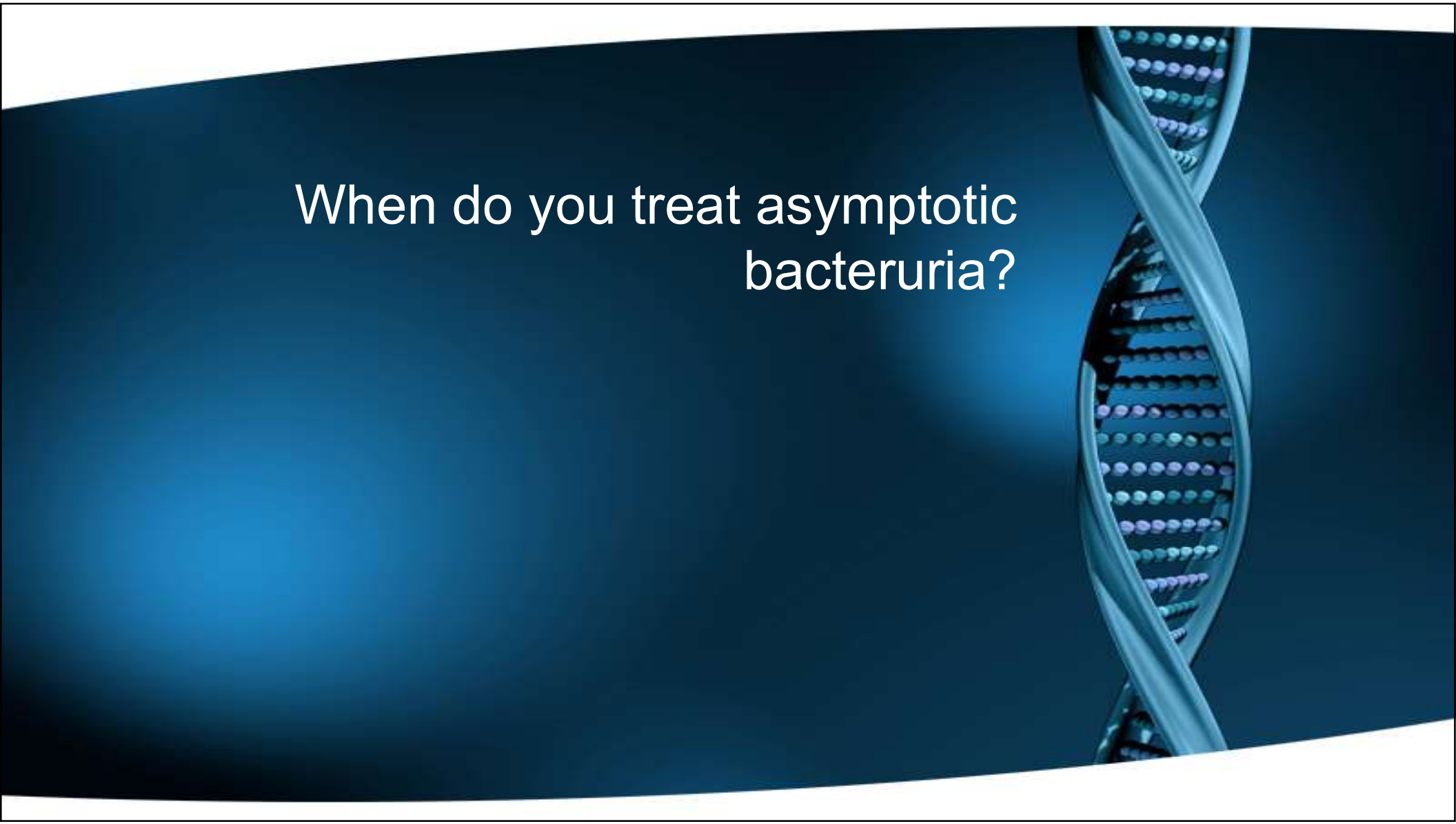
IDSA 2019 Clinical Practice Guideline for the Management of Asymptomatic Bacteriuria •

V. In an Older, Functionally or Cognitively Impaired Patient, Which Nonlocalizing Symptoms Distinguish ASB From Symptomatic UTI?

Recommendations

1. In older patients with functional and/or cognitive impairment with bacteriuria and delirium (acute mental status change, confusion) and without local genitourinary symptoms or other systemic signs of infection (eg, fever or hemodynamic instability), we recommend assessment for other causes and careful observation rather than antimicrobial treatment (*strong recommendation, very low-quality evidence*).
2. In older patients with functional and/or cognitive impairment with bacteriuria and without local genitourinary symptoms or other systemic signs of infection (fever, hemodynamic instability) who experience a fall, we recommend assessment for other causes and careful observation rather than antimicrobial treatment of bacteriuria (*strong recommendation, very low-quality evidence*). **Values and preferences:** This recommendation places a high value on avoiding adverse outcomes of antimicrobial therapy such as *Clostridioides difficile* infection, increased antimicrobial resistance, or adverse drug effects, in the absence of evidence that such treatment is beneficial for this vulnerable population. **Remarks:** For the

When do you treat asymptotic bacteruria?



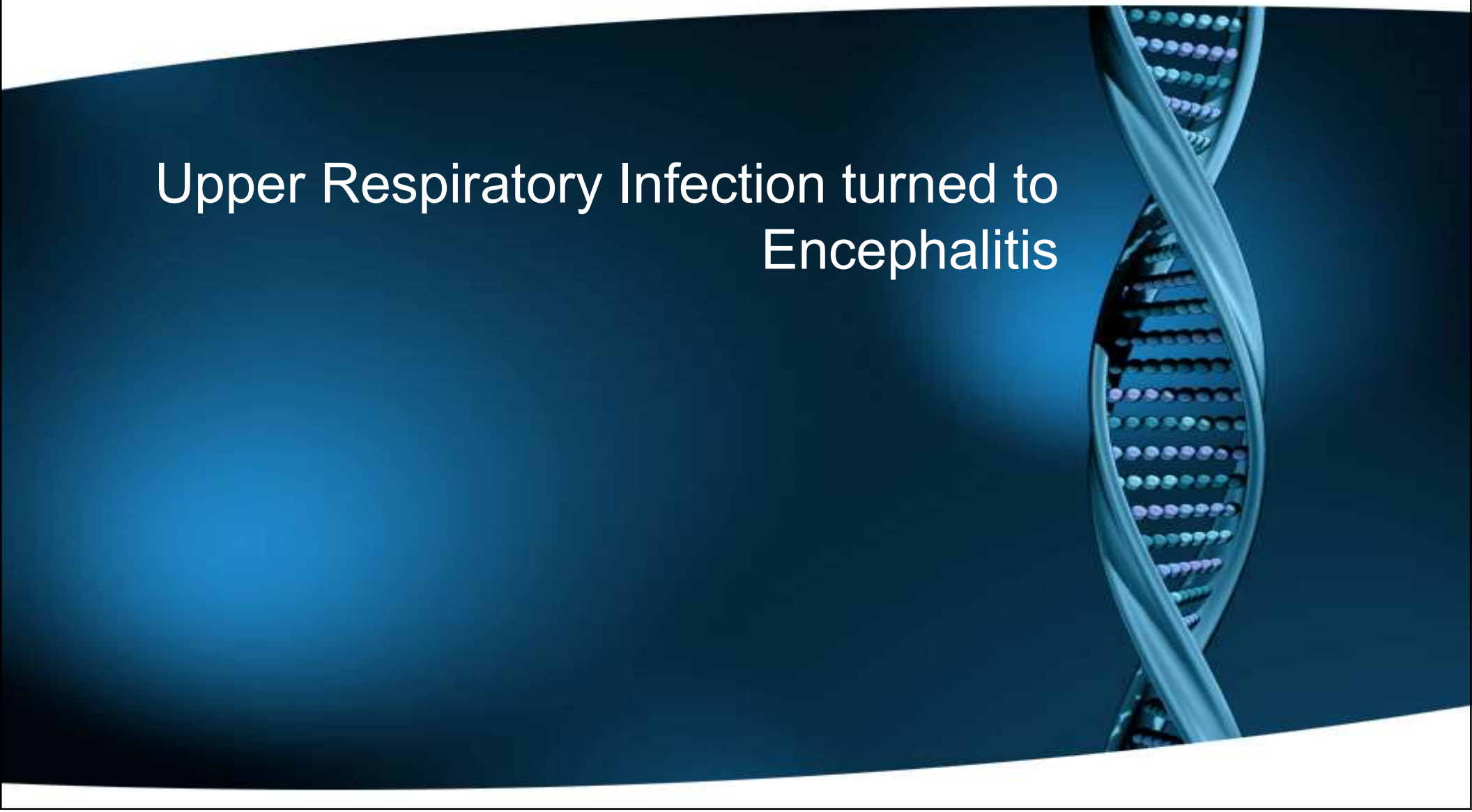
UTI in Pregnancy

- Asymptomatic bacteriuria increases risk of pyelonephritis and has been associated with adverse pregnancy outcomes, such as preterm birth and low birth weight infants
- Treat for 4-7 days
- Follow-up cx done as test of cure ~ one week after completion of therapy
- Recurrent (more than 3 episodes) suppressive therapy
  - Low dose nitrofurantoin (50 -100 mg)
  - Cephalexin (250-500 mg)
  - Can be given postcoital or daily

UTI in Pregnancy: Choice of Abx

- Remember info was obtained decades ago—little direct info
- Avoid tetracyclines, fluoroquinolones
- Trimethoprim-sulfamethoxazole-limit to mid-pregnancy-avoid first trimester and near term
- Avoid trimethoprim in first trimester (folic acid antagonist)
- Fosfomycin-generally safe
- Nitrofurantoin-generally safe

Upper Respiratory Infection turned to Encephalitis



Case Study

69-year-old male admitted via the ED with mental status changes. He was found to be combative and complaining of back pain.

Per his wife he had been having URI symptoms and treated with Zithromax at Urgent care.

A few days later he starting spiking fevers with mental status changes

11/27/23 05:40	11/26/23 06:50	11/25/23 06:00	11/24/23 06:40	11/23/23 05:11	11/22/23 09:21	11/22/23 04:20	11/21/23 04:41	11/20/23 03:20
8.4	7.0	10.6 ▲	11.0 ▲	12.9 ▲	18.6 ▲	17.1 ▲	22.0 ▲	16.8 ▲
3.59 ▼	3.50 ▼	3.66 ▼	3.62 ▼	3.85 ▼	4.20 ▼	3.67 ▼	3.23 ▼	3.55 ▼
11.8 ▼	11.4 ▼	11.8 ▼	11.5 ▼	12.6 ▼	13.4 ▼	11.9 ▼	10.4 ▼	11.1 ▼
35.0 ▼	34.2 ▼	35.4 ▼	35.1 ▼	38.5 ▼	42.2	36.0 ▼	31.4 ▼	34.8 ▼
97.5 ▲	97.6 ▲	96.7	97.1 ▲	99.9 ▲	100.6 ▲	98.0 ▲	97.0	98.2 ▲
32.9	32.5	32.2	31.8	32.8	31.8	32.5	32.2	31.4
33.8	33.3	33.4	32.7	32.8	31.6 ▼	33.1	33.2	32.0
13.2	13.4	13.2	13.7	14.4	14.9	14.3	14.0	13.8
263	215	192	157	166	147	143	136 ▼	127 ▼
10.1	10.3	11.1	10.7	10.1	11.1	10.0	10.3	10.3

Procalcitonin (PCT)

Collected:	11/19/23 2236
Result status:	Final
Resulting lab:	CHEMISTRY NORTH
Reference range:	0 - 0.25 ng/mL
Value:	13.95 ^

Comment:

Interpretation for RESPIRATORY infections (excluding TB, CF, legionella, pseudomonas, acinetobacter, stenotrophomonas and empyema/abscess):

<0.1	No bacterial pathology
0.1-0.25	Unlikely bacterial pathology (but must be interpreted in clinical context)
>0.25	Bacterial pathology likely

Interpretation for OTHER infections:

Meningitis	<0.2 bacterial infection very unlikely
Ascites related to liver disease	<0.5 spontaneous peritonitis unlikely

PCT-based decisions NOT recommended in the following conditions/infections: Pyelonephritis, Osteomyelitis, Endocarditis, HIV, Neutropenia or ESRD

Procalcitonin (PCT)

- Procalcitonin (PCT) is a 116-amino acid propeptide expressed in non-neuroendocrine tissues in response to inflammation and cellular injury, particularly in the setting of bacterial sepsis
- Elevated serum levels of PCT upregulated during sepsis correlates with infection severity
- Up to 10 fold increase in patients with AKI/CKD
- Sensitivities range between 0.55 and 0.95 and depend upon various bacteria
  - highest sensitivity in identifying BSI (blood stream infections) due to Streptococcus pneumoniae and Enterobacterales (patients with sepsis 96.4% and 91.3%, and patients without sepsis 88.0% and 86.4%, respectively) and the lowest in identifying BSI due to Enterococci and nonpseudomonal glucose nonfermenters (patients with sepsis 76.7% and 66.7%, and patients without sepsis 58.0% and 58.5%, respectively)*

LAWANDI, A. et al. Reliability of Admission Procalcitonin Testing for Capturing Bacteremia Across the Sepsis Spectrum: Real-World Utilization and Performance Characteristics, 65 US Hospitals, 2008-2017. CRITICAL CARE MEDICINE, [s. l.], v. 51, n. 11, p. 1527–1537, 2023

Component	3 wk ago
SPECIMEN DESCRIPTION	BLOOD (SITE 1 PERIPHERAL)
SPECIMEN TYPE	Blood
GRAM STAIN RESULTS	GRAM POSITIVE COCCI IN CHAINS
GRAM STAIN RESULTS	Preliminary critical result called to ar
GRAM STAIN RESULTS	Tested at Bethesda North Hospit
CULTURE RESULTS	Positive Growth!!
CULTURE RESULTS	STREPTOCOCCUS PNEUMONIAE
MICRONOTE	(NOTE) Growth of Streptococcus pneumoni
REPORT STATUS	11/23/2023 FINAL REPORT
ORGANISM	STREPTOCOCCUS PNEUMONIAE

Susceptibility

	Streptococcus pneumoniae MIC	
Amoxicillin + Clavulanate	<=0.5/0.25	Sensitive [1]
Azithromycin	<=0.25	Sensitive [1]
Cefaclor	1	Sensitive [1]
Cefepime	<=0.25	Sensitive [1]
Cefuroxime	<=0.25	Sensitive [1]
Chloramphenicol	<=1	Sensitive [1]
Clindamycin	<=0.06	Sensitive [1]
Erythromycin	<=0.06	Sensitive [1]
Levofloxacin	0.5	Sensitive [1]
Meropenem	<=0.06	Sensitive [1]
Penicillin G	<=0.03	Sensitive [1]
Tetracycline	<=0.5	Sensitive [1]
Trimethoprim + Sulfamethoxazole	<=0.25/4.7	Sensitive [1]
Vancomycin	0.5	Sensitive [2]

CSF CELL COUNT A...	
APPEARANCE, CSF	11/22/23 HAZY
TOTAL NUCLEATED CELLS, CSF ...	11/22/23 2,102 ▲
TOTAL NUCLEATED CELLS, CSF ...	11/22/23 1,545 ▲
RBC, CSF	11/22/23 267 ▲
	11/22/23 540 ▲
NEUTROPHILS CSF	11/22/23 81 ▲
MONOCYTES CSF	11/22/23 4 ▼
LYMPHOCYTES CSF	11/22/23 15 ▼

With mental status changes
LP done

Glucose was 15 (<40 signs for bacterial meningitis)
Protein was 407 (100-500 signs for bacterial meningitis)
Total nucleated cells were greater than 1000 (>1000 signs for bacterial meningitis)

CSF Findings in CNS Infections

	Pressure (40-80mm h2o)	Leukocytes (2-4mm3)	Protein (20-40mg/dl	Glucose (40-80mg/dl)
Bacterial meningitis	increased	100-50000 PMN	100-500 (high)	Low < 40
Viral meningitis	N or increased	Less than 1000 Mononuclear	50-200(high)	N or high
Viral encephalitis	N or increased	Less than 1000 PMN early, then mononuclear	50-200(high)	N or high
T.B meningitis	increased	10-500 Lymphocytes	100-500 (high)	Low < 40
Brain abscess	increased	10-200 lymphocytes	100- 500	normal

Meningoencephalitis PCR panel

Status: Final result Visible to patient: No (not released) Next appt: 12/15/2023 at 09:40 AM in Inte

0 Result Notes

Component Ref Range & Units	2 wk ago
E. COLI K1 Not Detected	Not Detected
H. INFLUENZAE Not Detected	Not Detected
L. MONOCYTOGENES Not Detected	Not Detected
N. MENINGITIDIS Not Detected	Not Detected
S. AGALACTIAE Not Detected	Not Detected
S. PNEUMONIA Not Detected Comment: RESULT CALLED TO NURSE DARRYL BRYAN ON 11/22/23 AT 2356 BY 109152. READ BACK YES.	DETECTED !!
CYTOMEGALOVIRUS Not Detected Comment: (NOTE) The Film Array ME panel does not distinguish between latent and active CMV infection. Detection of this virus may indicate primary infection, secondary reactivation, or the presence of latent virus. Results should always be interpreted in conjunction with other clinical, laboratory and epidemiological information.	Not Detected
ENTEROVIRUS Not Detected	Not Detected
HERPES SIMPLEX VIRUS 1 Not Detected	Not Detected
HERPES SIMPLEX VIRUS 2 Not Detected	Not Detected
HUMAN HERPESVIRUS 6 Not Detected	DETECTED !!

Https://www.ncbi.nlm.nih.gov/pmc/articles/PMC7155960/

Given the rarity of HHV-6 meningitis in immunocompetent adults, there are no established standard treatment guidelines; previous reported cases, as well as this case, suggest that either intravenous ganciclovir or intravenous foscarnet are the most reasonable first-line treatment options.

Another unique feature of the virus is that viral DNA of HHV-6 can be integrated into host chromosomal DNA and inherited through the germline.1 In these individuals, the viral DNA would be present in all nucleated cells and bodily fluids.2 While chromosomally integrated HHV-6 is certainly rare, occurring in only 1% of the population, it can complicate the diagnosis of HHV-6. It is important to note that PCR is reportedly unable to distinguish between active viral replication of DNA vs DNA that was already integrated into the host chromosome.5 While specific tests can differentiate between chromosomally integrated HHV-6 and true HHV-6 meningitis, these tests must be specifically obtained from specialty labs and are not routinely available at most hospitals.

MRI head

New diffusion restriction within the lateral ventricles and subarachnoid spaces over the high convexities. Differential considerations include intraventricular and subarachnoid hemorrhage or purulent material. Correlation with recent lumbar puncture
recommended.

MRI review by neurology

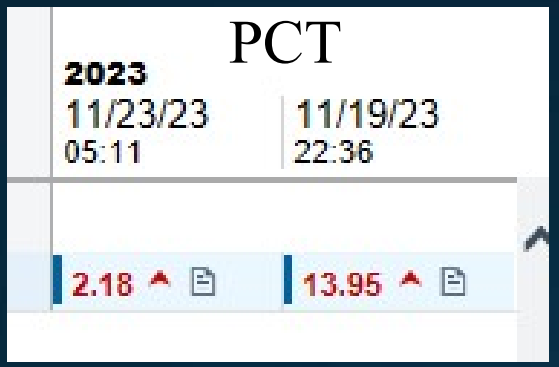
MRI brain reviewed and agree there is small amount of diffusion restriction within the lateral ventricles. No hydrocephalus. No focal abscess.
Given hx of strep meningitis findings most likely represent small amount of ventriculitis. Agree with recommendation for longer period of antibiotics.
No need for ventricular drain since no hydrocephalus and clinical status improving.

Cardiac ultrasound without vegetation

Hearing loss

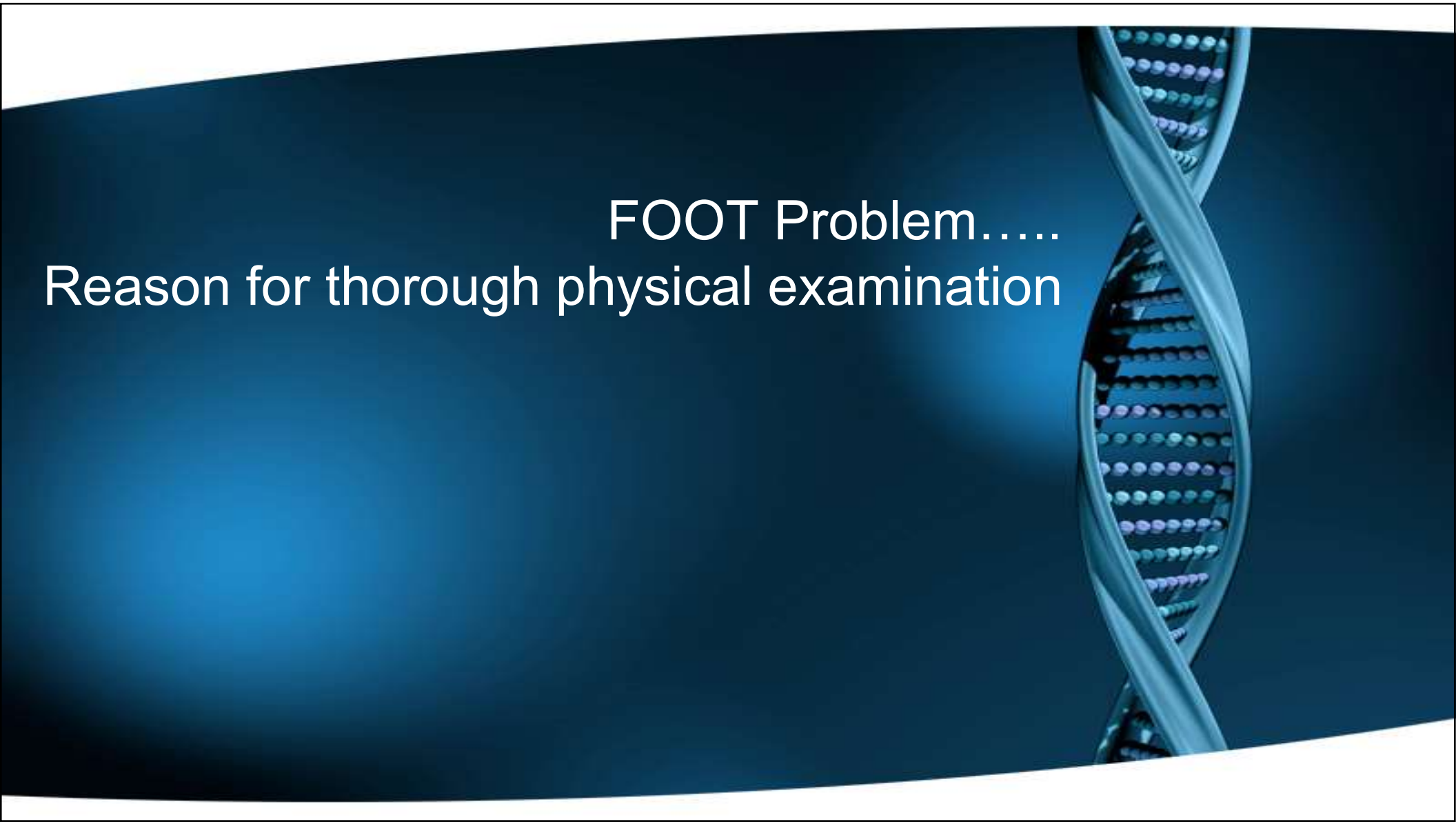
Treatment

- Until cx obtained
  - vancomycin (15 to 20 mg/kg every 8 to 12 hours) plus
  - ampicillin (2 g every 4 hours)
  - plus cefepime (2 g every 8 hours)
- OR vancomycin plus meropenem (2 g every 8 hours)
- steroids



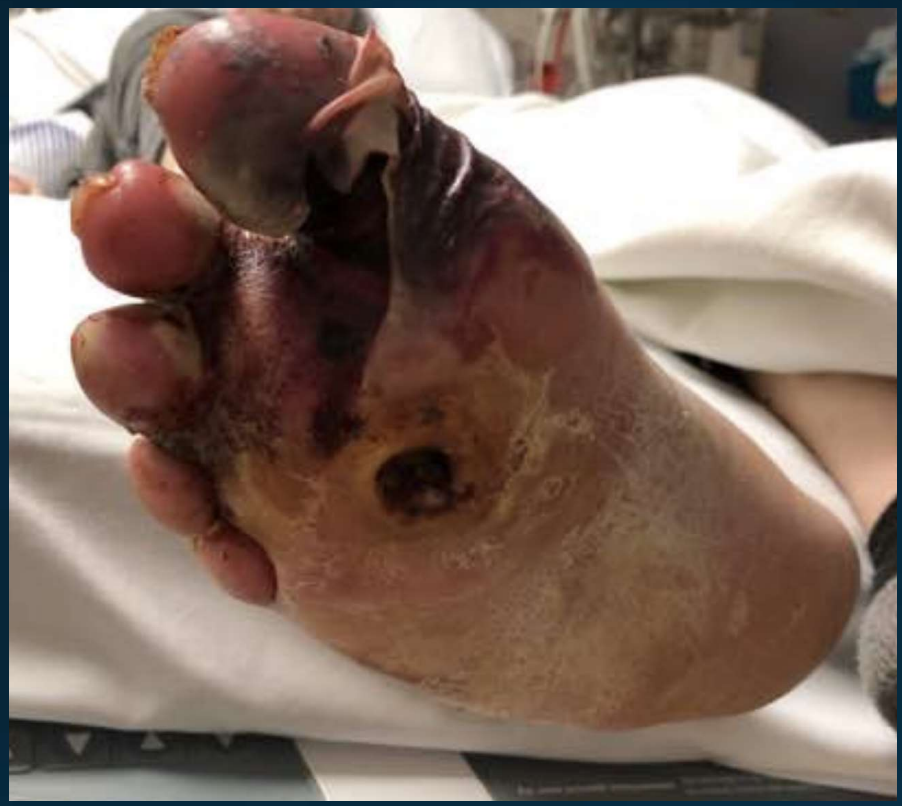
Assessment:
#Streptococcus pneumoniae bacteremia:
#Bacterial meningitis:
#Recent Respiratory symptoms suggestive of pneumonia:
#Low back pain:
#Acute hearing loss:
#neutrophilic Leukocytosis:

ID ANTIMICROBIAL PLAN
Dx: Streptococcus pneumonia ventriculitis
Cultures: B.C Streptococcus pneumonia
Line: PICC
Rx: Ceftriaxone 2 g IVPB q 12 hours
Duration: 4 weeks: 12/17/2023
Labs (send to TriHealth labs only): Every Monday CBC with diff, ALT, Creatinine, ESR, C-RP. Fax all labs to (

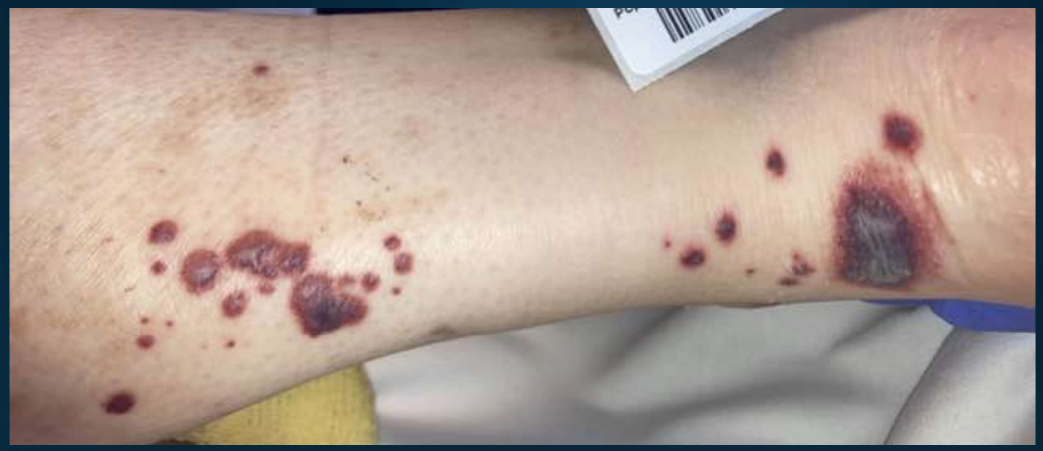

FOOT Problem…..
Reason for thorough physical examination

a 40 year old male who was admitted via the ED with malaise, anorexia, chills, sweats and nausea. He noted increasing pain and redness right foot that started 10 days PTA after wearing tight socks. He wife noted a foul odor that prompted a visit to the ED. He is known diabetic who did not take any medication the past few days. He was previously seen 4/21 for infection right fot with blood cx GBS 12/31/2021 with gas gangrene and OM 4th and 5th metatarsals treated with IV Zosyn. He refused amputation at that time. On admission Tmax 98.8, WBC 21.4, creatinine 0.95 and glucose 551, CRP 256. Current IV medications cefepime and vancomycin. Of note, during the last few days he has noted multiple vascular-type lesions on both hands and legs.

GBS=Group B Streptococcus



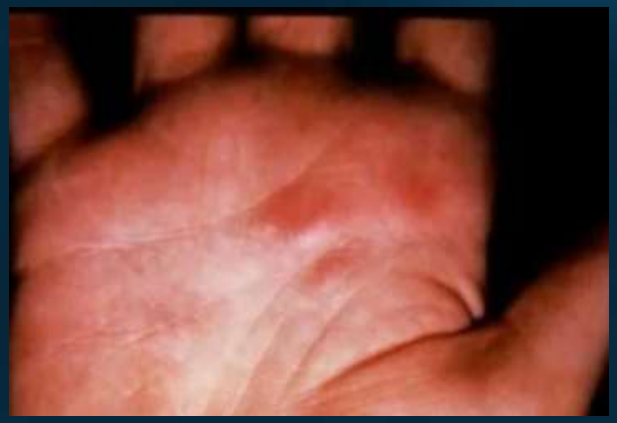
Clinical pictures

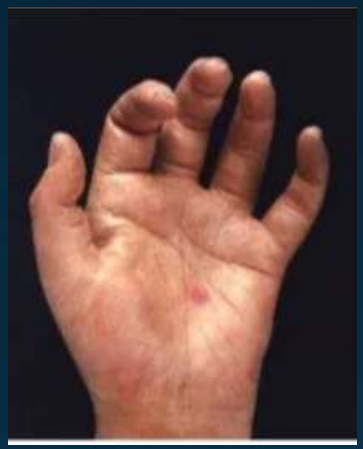


Clinical pictures

Janeway lesions
Not tender
Septic microemboli
Soles, palms, plantar surfaces of the toe

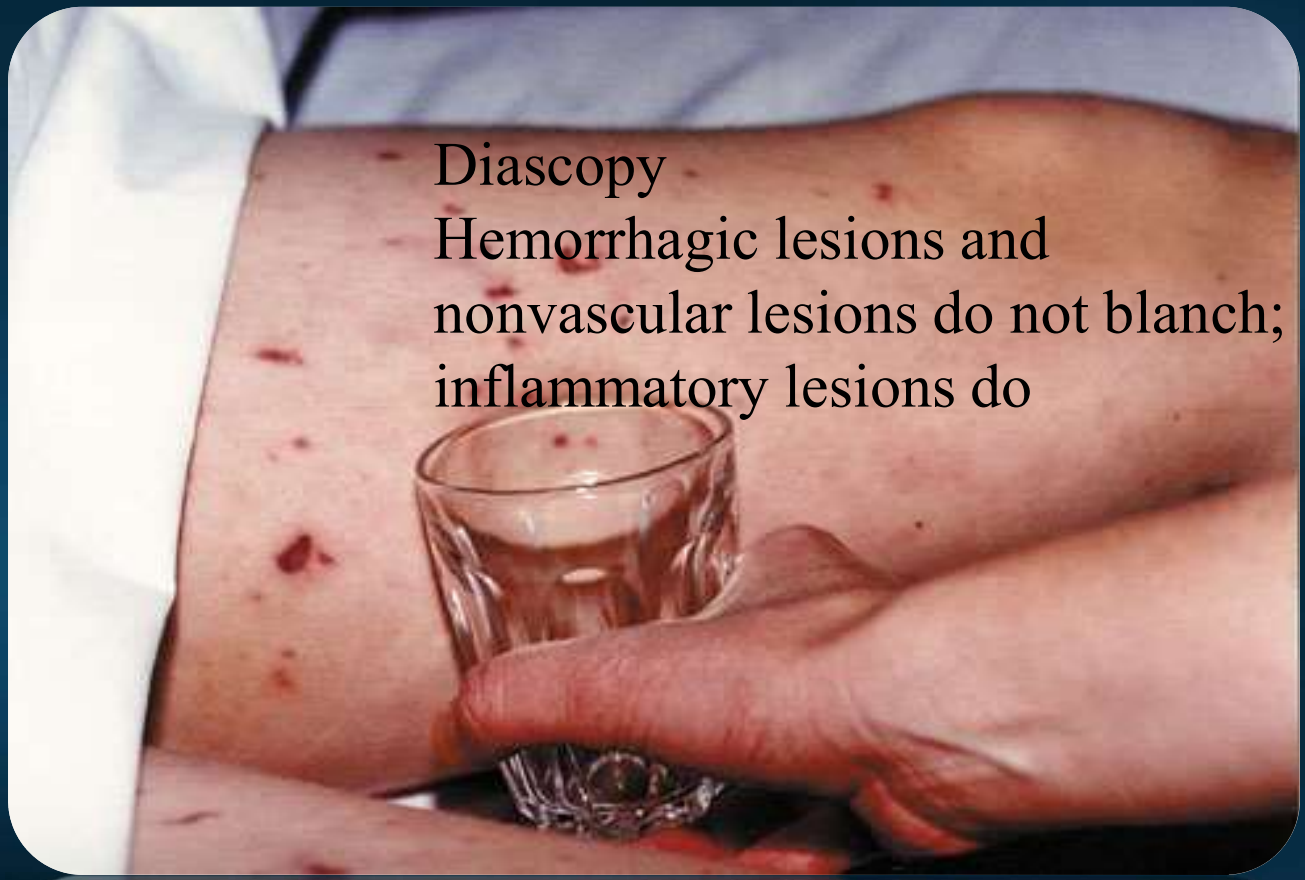
Osler's Nodes





Finger and toe tips
Tender
Cx usually negative
Vasculitis

Meningitis-glass test



Culture Tissue w/ Gram Stain
Specimen Collected Date: 11/9/2023 7:40 PM

Culture Tissue w/ Gram Stain

STATUS
Preliminary result

VISIBLE TO PATIENT
No (not released)

	VALUE
SPECIMEN DESCRIPTION	Foot, Right
SPECIMEN TYPE	TISSUE
GRAM STAIN RESULTS	Few WBCs
GRAM STAIN RESULTS	Moderate Gram positive cocci
GRAM STAIN RESULTS	Abundant Gram positive rods
GRAM STAIN RESULTS	Few Gram negative rods
GRAM STAIN RESULTS	Few Yeast
CULTURE RESULTS	Positive Growth !
CULTURE RESULTS	STAPHYLOCOCCUS AUREUS
CULTURE RESULTS	ENTEROCOCCUS FAECALIS
CULTURE RESULTS	CANDIDA ALBICANS ISOLATED
CULTURE RESULTS	Streptococcus mitis/S. oralis
MICRONOTE	(NOTE) Abundant growth of Staphylococ...
REPORT STATUS	PENDING

RESULTING AGENCY
TRIHEALTH LABORATORY

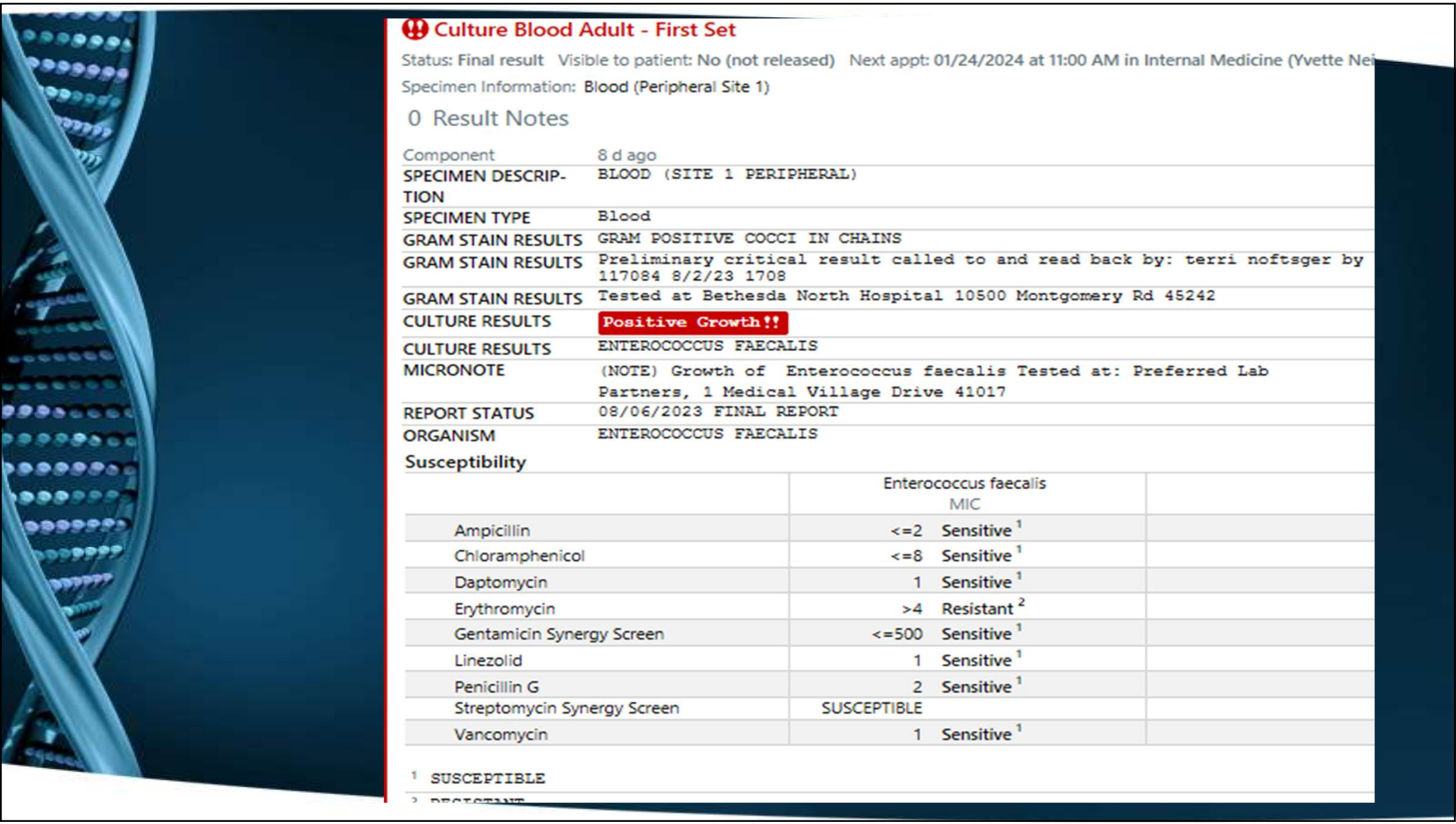
SPECIMEN COLLECTED
11/9/2023 7:40 PM

LAST RESULTED
11/12/2023 11:47 AM

SPECIMEN TYPE
Tissue

SPECIMEN SOURCE
Foot, Right

Clinical pictures



Culture Blood Adult - First Set

Status: Final result Visible to patient: No (not released) Next appt: 01/24/2024 at 11:00 AM in Internal Medicine (Yvette Nei

Specimen Information: Blood (Peripheral Site 1)

0 Result Notes

Component	8 d ago
SPECIMEN DESCRIPTION	BLOOD (SITE 1 PERIPHERAL)
SPECIMEN TYPE	Blood
GRAM STAIN RESULTS	GRAM POSITIVE COCCI IN CHAINS
GRAM STAIN RESULTS	Preliminary critical result called to and read back by: terri noftsger by 117084 8/2/23 1708
GRAM STAIN RESULTS	Tested at Bethesda North Hospital 10500 Montgomery Rd 45242
CULTURE RESULTS	Positive Growth!!
CULTURE RESULTS	ENTEROCOCCUS FAECALIS
MICRONOTE	(NOTE) Growth of Enterococcus faecalis Tested at: Preferred Lab Partners, 1 Medical Village Drive 41017
REPORT STATUS	08/06/2023 FINAL REPORT
ORGANISM	ENTEROCOCCUS FAECALIS

Susceptibility

	Enterococcus faecalis MIC	
Ampicillin	<=2	Sensitive [1]
Chloramphenicol	<=8	Sensitive [1]
Daptomycin	1	Sensitive [1]
Erythromycin	>4	Resistant [2]
Gentamicin Synergy Screen	<=500	Sensitive [1]
Linezolid	1	Sensitive [1]
Penicillin G	2	Sensitive [1]
Streptomycin Synergy Screen	SUSCEPTIBLE	
Vancomycin	1	Sensitive [1]

[1] SUSCEPTIBLE

Not this patient, however this is VRE

ORGANISM
ENTEROCOCCUS FAECIUM

Culture & Susceptibility

ENTEROCOCCUS FAECIUM

Antibiotic		Sensitivity	Microscan	Status
Ampicillin		Resistant	>8 RESISTANT	Final
	Method:	MIC		
Ciprofloxacin		Resistant	>2 RESISTANT	Final
	Method:	MIC		
Daptomycin		Sensitive	4 SUSCEPTIBLE	Final
	Method:	MIC		
Levofloxacin		Resistant	>4 RESISTANT	Final
	Method:	MIC		
Linezolid		Sensitive	2 SUSCEPTIBLE	Final
	Method:	MIC		
Nitrofurantoin		Sensitive	<=32 SUSCEPTIBLE	Final
	Method:	MIC		
Tetracycline		Resistant	>8 RESISTANT	Final
	Method:	MIC		
Vancomycin		Resistant	>16 RESISTANT PLEASE NOTE VANCOMYCIN RESISTANCE	Final
	Method:	MIC		

From clinical practice

VRE Risk Factors

- Antimicrobial therapy
  - Parenteral and oral Vancomycin
  - Cephalosporins
- Length of hospital stay
- Immunosuppression
  - Malignancy, organ transplant, chronic renal failure
- IV Medications
  - E faecium and E faecalis
    - Linezolid
  - E faecalis
    - Daptomycin

CD ECHO 2D DOPP AND COLOR FLOW

Exam End Date: 11/9/2023 3:48 PM

Summary:
Left ventricular wall motion is normal.
Left ventricular function is hyperdynamic.
Overall left ventricular ejection fraction is estimated to be 70-75%.
Right ventricle is hyperdynamic.
Mild aortic regurgitation.
Aortic Valve leaflets appear thickened. Possible mobile mass on the aortic valve. A vegetation cannot be excluded.
Vegetation on the mitral valve cannot be excluded.
Mitral valve leaflets are mildly thickened in appearance.
Recommend TEE if clinically appropriate.

CD TRANSESOPHAGEAL ECHO

Overall left ventricular ejection fraction is estimated to be 70-75%.
Aortic Valve leaflets appear thickened.
Trace aortic regurgitation.
Trace mitral regurgitation.
No valvular vegetation or thrombus are identified.
Reason for Study: r/o endocarditis.

IV Daptomycin and Cefepime, Flagyl for anerobic coverage

ID ANTIMICROBIAL PLAN
Dx: MSSA bacteremia; necrotizing fasciitis
Cultures: Blood culture with MSSA
Line: PICC
Rx: Unasyn 3 g IVPB q 6 hours or continuous infusion


TRAVEL TO BANGLADESH…..

[redacted] is a 22 year old female, with history of sleeve gastrectomy, with recent travel to bangladesh who was admitted with fever, myalgias, and abdominal pain. Patient found to have salmonella bacteremia suspicious for typhoid fever. She was started on levaquin. WBC normal. CT scan with no cholecystitis, enlarged lymh nodes.

Component	4 d ago
SPECIMEN DESCRIP-TION	BLOOD (SITE 1 PERIPHERAL)
SPECIMEN TYPE	Blood
GRAM STAIN RESULTS	GRAM NEGATIVE RODS
GRAM STAIN RESULTS	Preliminary critical result called to and read back by: BLISSPAUL,WHADJAH ON 12/13/23 AT 0522 BY RR
GRAM STAIN RESULTS	Tested at Bethesda North Hospital 10500 Montgomery Rd 45242
CULTURE RESULTS	Positive Growth!!
CULTURE RESULTS	SALMONELLA SPECIES
MICRONOTE	(NOTE) Growth of Salmonella species Tested at: Preferred Lab Partners, 1 Medical Village Drive 41017
REPORT STATUS	12/15/2023 FINAL REPORT
ORGANISM	SALMONELLA SPECIES

Susceptibility

	Salmonella species MIC	
Ampicillin	<=8	Sensitive [1]
Cefotaxime	<=2	Sensitive [1]
Ceftriaxone	<=1	Sensitive [1]
Trimethoprim + Sulfamethoxazole	<=0.5/9.5	Sensitive [1]

Assessment:

1. **Salmonella bacteremia**

-- suspicious for typhoid

-- about 40% resistance to flouroquinolones noted in bangladesh : https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4249406/#:~:text=Resistance%20genes%20in%20the%20majority,nalidixic%20acid%20and%20ciprofloxacin%2C%20respectively.

-- repeat blood cultures ordered

-- will transition to cefepime 2 g IVPB q 12

Labs/Cultures:

Recent Labs

	12/10/23 1327	12/12/23 1351
WBC	6.7	4.4
HGB	12.6	12.8
HCT	38.8	38.8
MCV	**73.0***	**72.7***
PLT	257	235

Recent Labs

	12/10/23 1327	12/12/23 1351
NA	**134***	**133***
K	3.9	**3.5***
CL	101	100
CO2	22	22
AGAP	11	11
GLU	**115***	**113***
BUN	8	**6***
CRET	0.72	0.71
CA	9.1	8.9
ALB	4.1	4.0
TP	7.6	7.5
ALT	19	38

Procalcitonin Result	12/15/23 2.26 ▲

HEPATIC FUNC PANEL

Order

Status: Final result Visible to patient: No (not released) Next appt: None

0 Result Notes

Component Ref Range & Units	2 d ago	3 d ago	4 d ago	5 d ago	7 d ago
ALK PHOSPHATASE 35 - 135 IU/L	85	95	83	92	53
TOTAL PROTEIN 6.0 - 8.0 g/dL	5.5 ↓	6.1	6.2	7.5	7.6
ALBUMIN 3.5 - 5.7 g/dL	3.0 ↓	3.4 ↓	3.2 ↓	4.0	4.1
AST 10 - 40 IU/L	79 ↑	91 ↑	69 ↑	66 ↑	29
ALT 10 - 60 IU/L	40	47	37	38	19
TOTAL BILIRUBIN 0.0 - 1.2 mg/dL	0.4	0.5	0.5	0.6	0.6
DIRECT BILIRUBIN 0.0 - 0.2 mg/dL	0.1	0.2 CM	0.2 CM	0.2 CM	0.1 CM

HEMATOLOGY MISC		
RAPID MALARIA ANTIGEN SCREEN	12/12/23	NEGATIVE
MALARIA SLIDE REVIEW	12/12/23	NEGATIVE
MALARIA, % RBC INFECTED	12/12/23	PENDING
PLASMODIUM SPECIES	12/12/23	PENDING

Show images for CT ABDOMEN PELVIS W CONTRAST

Impression

Retroperitoneal and mesenteric lymphadenopathy may be reactive or related to myeloproliferative disorder.

Malpositioned intrauterine device.

Hepatic steatosis.

Malaria, Rapid Antigen Screen and Microscopic Slide Review

Order: 5049

Status: Final result Visible to patient: No (not released) Next appt: None

0 Result Notes

Component Ref Range & Units	5 d ago	7 d ago
RAPID MALARIA ANTIGEN SCREEN NEGATIVE	**NEGATIVE**	NEGATIVE CM

Comment: Presumptive negative for malaria antigen. Malaria antigen in the sample may be below the detecti limit of the test.
This is an immunochromatographic assay for qualitative detection of Plasmodium antigens in individuals w signs and symptoms of malarial infection. Rapid screening results should not be used for therapeutic monitoring. Samples with positive rheumatoid
factors may produce false positive results.

MALARIA SLIDE REVIEW NEGATIVE	**NEGATIVE**	NEGATIVE CM

Comment: Malaria should not be excluded as a possible diagnosis based on a single negative result. If sti suspected, samples should be taken at intervals of 12 to 24 hours for a total of three sets.

Persistent fever noted. Continue with IV ampicillin. Repeat blood cultures
fever-> check rvp, fungal by ID, and tb gold. Repeat CXR and PCT.

Component Ref Range & Units	2 d ago
SPECIMEN SOURCE, RESPIRATORY PATHOGENS	Nasopharynx
ADENOVIRUS PCR Not Detected	Not Detected
CORONAVIRUS HKU1, NL63, OC43, 229E (NOT COVID-19) Not Detected	Not Detected
CORONAVIRUS COVID19 Not Detected	Not Detected
Comment: Negative (Not Detected) results do not preclude SARS-CoV sole basis for treatment or other patient management decisions. Testing was performed using the BioFire Respiratory Panel 2.1 (F	
METAPNEUMOVIRUS PCR Not Detected	Not Detected
RHINO/ENTEROVIRUS PCR Not Detected	Not Detected
Comment: Note: This test does not differentiate Rhinovirus and En	
FLU A (NO SUBTYPE) Not Detected	Not Detected
INFLUENZA A H1 Not Detected	Not Detected
INFLUENZA A H1 2009 Not Detected	Not Detected
INFLUENZA A H3 Not Detected	Not Detected
INFLUENZA B VIRUS PCR Not Detected	Not Detected
PARAINFLUENZA VIRUS PCR Not Detected	Not Detected
RESPIRATORY SYNCYTIAL VIRUS PCR Not Detected	Not Detected
BORDETELLA PERTUSSIS PCR Not Detected	Not Detected
B PARAPERTUSSIS Not Detected	Not Detected
CHLAM PNEUMONIAE Not Detected	Not Detected
MYCOPLASMA PNEUMONIAE PCR	Not Detected

Discharged on oral Ceftin total 2 weeks


Positive Plasmodium falciparum

Briefly 40 year old male with no significant PMH seen for **non-complicated malaria**. The patient just returned from a 2-week trip to Nigeria where he had multiple mosquito bites. He was not on prophylaxis per patient report. Is the first time he has malaria. A rapid test came back positive for ***Plasmodium falciparum***, the peripheral smear is pending. He had multiple nonspecific symptoms prior to admission including fevers and chills along with extreme weakness. Initially had low blood pressure but corrected quickly with IV fluids he may have been dehydrated. The patient is on **day 2 of artemether/lumefantrine. He feels 100% better I will like to go home tomorrow if possible.** He is not in acute distress and vital signs are stable. HIV and viral studies have been negative.

RAPID MALARIA ANTIGEN SCREEN
NEGATIVE

!

Positive for P. falciparum protein antigen. Differentiation between pure P. falciparum versus mixed Plasmodium species infection is not possible.

Comment: This is an immunochromatographic assay for qualitative detection of Plasmodium antigens in individuals with signs and symptoms of malarial infection. Rapid screening results should not be used for therapeutic monitoring. Samples with positive rheumatoid factors may produce false positive results.
Successful Call: MAL1 called 12/12/2023 08:12 AM to FERNANDEZ PENA MD,HILDA MARISELA,MD ((513) 865-2246/GIBSON,CHICQUETTA) by 101995. Read Back: Yes

MALARIA SLIDE REVIEW
NEGATIVE

POSITIVE!!

Comment: *CRITICAL VALUE*

MALARIA, % RBC INFECTED
%

2 over 5%=severe

PLASMODIUM SPECIES

Plasmodium falciparum

Labs/Cultures:

Recent Labs

	12/11/23 0949	12/12/23 0640
WBC	4.7	4.3
HGB	13.6	**11.8***
HCT	41.6	**35.9***
MCV	**80.0***	**80.2***
PLT	**56***	**50***

Recent Labs

	12/11/23 0949	12/12/23 0640
NA	**133***	136
K	3.9	3.6
CL	100	106
CO2	27	25
AGAP	6	5
GLU	**119***	**102***
BUN	15	14
CRET	1.30	1.03
CA	8.7	**8.0***
ALB	3.7	**3.2***
TP	7.3	6.3
ALT	**62***	42

artemether-lumefantrine (COARTEM) 20-120 mg per tablet [505113896]

Dose: 4 tablet Route: Oral Frequency: 2 times daily

Dispense Quantity: -- Refills: --

Indications of Use: Malaria

Sig: Take 4 tablets by mouth 2 (two) times daily. Indications: Malaria

- **The patient has had significant clinical improvement on artemether/lumefantrine----> complete the regimen : *4 tablets (20 mg / 120 mg tabs) as a single dose, then 4 tablets again after 8 hours, then 4 tablets every 12 hours for 2 days (take it with food).***

Artemether-lumefantrine (Coratem)

- Monitor CBC/creatinine/lactic acid/LFTs/LDH/CK
- Need to check for post-artemisinin delayed hemolysis one week after he stops treatment
- Monitor Hct for one month post treatment
- Monitor QTc and avoid QTc prolonging medications

Does being from Mexico change your differentials?
What about diet?

- 58 year old male admitted with painful bilateral hand swelling and rash that started 2-3 days PTA
- He notes fever, but no chills
- Lives with his daughter who has 5 children all in good health
- He is from Mexico but has not been there since July (5 months ago)
- He was doing landscaping, however he lost his job since he had trouble getting in the truck due to leg discomfort

- He recently noted that he lost his balance and had severe pain in his right knee. His knee remains painful-no swelling or erythema
- He denies any new detergents, lotions, etc. No recent travel. Family has two healthy dogs.
- He is not vaccinated against flu, COVID or RSV and is uncertain of other vaccines.
- He is a known ETOH, but stopped drinking 6 months ago.
- He is DM2 on insulin

- On admission Tmax 102.6
- PCT 0.17, CRP 74
- Hb 10.9
- Blood cx NGTD
- Skin biopsy pending

Recent Labs

	12/23/23 1851	12/24/23 0512	12/25/23 0344
WBC	8.1	8.7	5.9
HGB	**10.9***	**9.7***	**9.6***
HCT	**32.1***	**24.4***	**25.0***
MCV	91.4	95.0	**98.0***
PLT	**440***	**412***	**453***

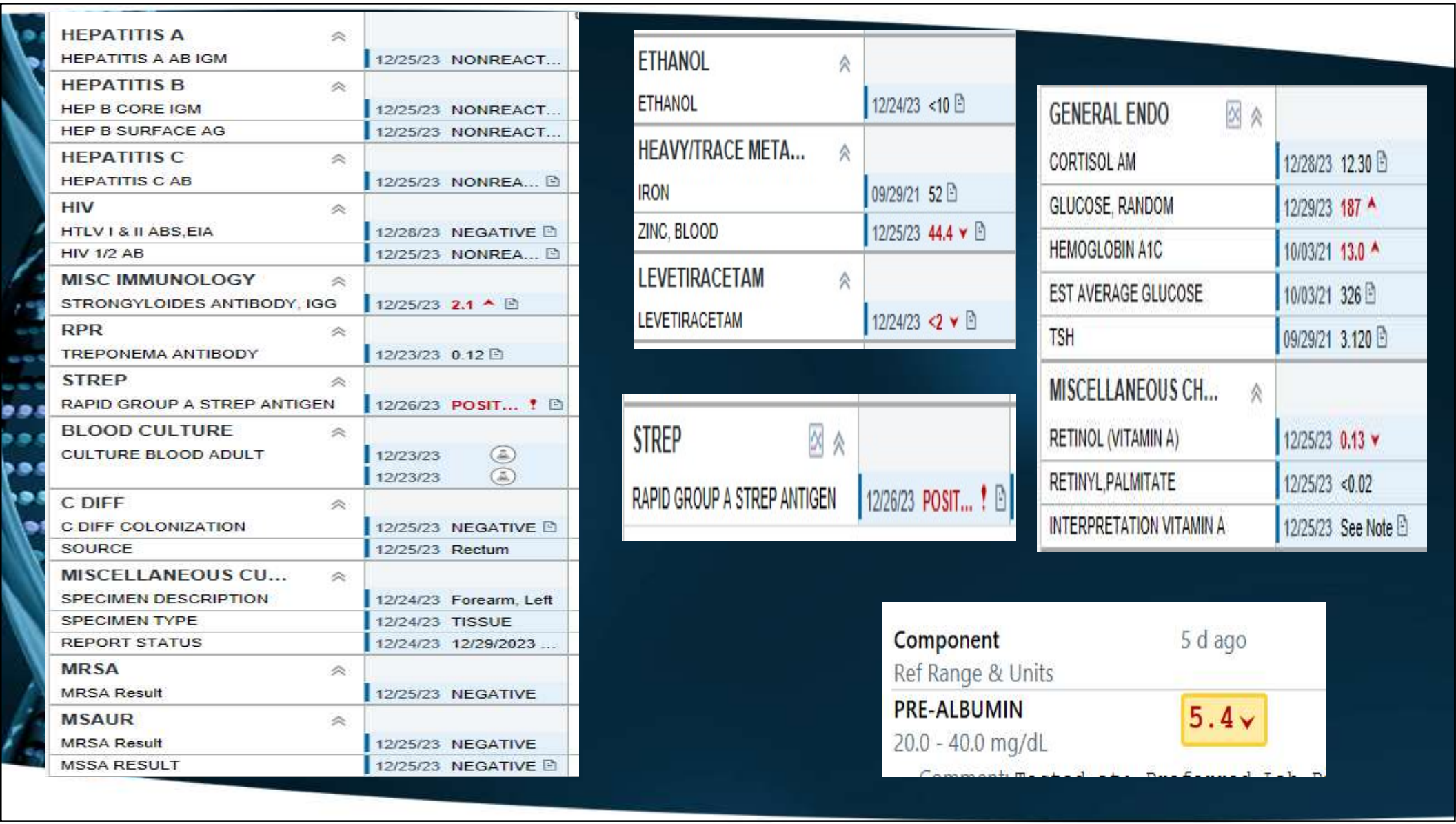
Recent Labs

	12/23/23 1851	12/23/23 2207	12/24/23 0107	12/24/23 0512	12/25/23 0344
NA	**118***	**126***	--	**133***	**134***
K	**3.0***	**3.0***	--	**2.9***	**2.9***
CL	**83***	**92***	--	101	103
CO2	23	23	--	25	25
AGAP	12	11	--	7	6
GLU	**804***	**457***	--	87	**105***
BUN	12	10	--	**7***	9
CRET	1.03	0.82	--	**0.54***	**0.68***
CA	**8.1***	**8.2***	--	**8.3***	**8.2***
MG	--	--	1.8	--	1.8
ALB	3.7	--	--	--	**3.0***
TBIL	--	--	--	--	0.4
TP	7.4	--	--	--	**5.9***
ALT	16	--	--	--	10

CBC		
WBC	12/28/23	7.5
RBC	12/28/23	2.59 ↓
HEMOGLOBIN	12/28/23	9.4 ↓
HEMATOCRIT	12/28/23	25.3 ↓
MCV	12/28/23	97.7 ↑
MCH	12/28/23	36.4 ↑
MCHC	12/28/23	37.3 ↑
RDW	12/28/23	11.6 ↓
PLATELET	12/28/23	588 ↑
MPV	12/28/23	7.2 ↓

DIFF		
SEGS	12/28/23	58
BAND	10/04/21	3
LYMPHOCYTES	12/28/23	25
MONOCYTES	12/28/23	13
MONOS	10/05/21	4
EOS	10/05/21	3
EOSINOPHIL	12/28/23	3
BASOPHILS	12/28/23	1
BASOS	10/05/21	0
METAMYELOCYTE	10/05/21	2
MYELOCYTE	10/05/21	1
ABS NEUTROPHIL	10/05/21	4.27
ABS. NEUTROPHIL	12/28/23	4.40
ABS LYMPHS	12/28/23	1.80
ABS MONOS	12/28/23	1.00 ↑
ABS EOS	12/28/23	0.20
ABS BASOS	12/28/23	0.00
NRBC	10/05/21	2 ↑
RBC MORPHOLOGY	10/03/21	Unremarkable
POLYCHROMASIA	10/04/21	MODERA...
SMUDGE CELLS	09/29/21	PRESENT
STOMATOCYTES	10/05/21	MODERA...

GENERAL CHEMISTRY		
SODIUM	12/29/23	132 ↓
POTASSIUM	12/29/23	4.2
CHLORIDE	12/29/23	100
CO2	12/29/23	25
BLD UREA NITROGEN	12/29/23	15
CREATININE	12/29/23	0.55 ↓
GFR AFRICAN AMERICAN	10/05/21	122
GFR NON-AFRICAN AMER	10/05/21	105
ESTIMATED GFR	12/29/23	115
ANION GAP	12/29/23	7
GLUCOSE, RANDOM	12/29/23	187 ↑
CALCIUM	12/29/23	8.1 ↓
PHOSPHOROUS	12/28/23	2.8
MAGNESIUM	12/28/23	1.8
LACTIC ACID	12/23/23	1.7
AMMONIA	10/02/21	86 ↑
IRON	09/29/21	52
FERRITIN	09/29/21	3,801 ↑
IRON BINDING CAP	09/29/21	Unable to ca...
IRON SATURATION	09/29/21	Unable to...
BETA-HYDROXYBUTYRATE	12/23/23	1.56 ↑
FOLATE	12/26/23	>20.00
VITAMIN B12	12/26/23	1,436 ↑
VITAMIN B6, PLASMA	12/25/23	23.8
VITAMIN D 25 OH	12/25/23	<5.0 ↓



HEPATITIS A		
HEPATITIS A AB IGM	12/25/23	NONREACT...
HEPATITIS B		
HEP B CORE IGM	12/25/23	NONREACT...
HEP B SURFACE AG	12/25/23	NONREACT...
HEPATITIS C		
HEPATITIS C AB	12/25/23	NONREA...
HIV		
HTLV I & II ABS,EIA	12/28/23	NEGATIVE
HIV 1/2 AB	12/25/23	NONREA...
MISC IMMUNOLOGY		
STRONGYLOIDES ANTIBODY, IGG	12/25/23	2.1 ▲
RPR		
TREPONEMA ANTIBODY	12/23/23	0.12
STREP		
RAPID GROUP A STREP ANTIGEN	12/26/23	POSIT... !
BLOOD CULTURE		
CULTURE BLOOD ADULT	12/23/23	
	12/23/23	
C DIFF		
C DIFF COLONIZATION	12/25/23	NEGATIVE
SOURCE	12/25/23	Rectum
MISCELLANEOUS CU...		
SPECIMEN DESCRIPTION	12/24/23	Forearm, Left
SPECIMEN TYPE	12/24/23	TISSUE
REPORT STATUS	12/24/23	12/29/2023 ...
MRSA		
MRSA Result	12/25/23	NEGATIVE
MSAUR		
MRSA Result	12/25/23	NEGATIVE
MSSA RESULT	12/25/23	NEGATIVE

ETHANOL		
ETHANOL	12/24/23	<10
HEAVY/TRACE META...		
IRON	09/29/21	52
ZINC, BLOOD	12/25/23	44.4 ▼
LEVETIRACETAM		
LEVETIRACETAM	12/24/23	<2 ▼

STREP		
RAPID GROUP A STREP ANTIGEN	12/26/23	POSIT... !

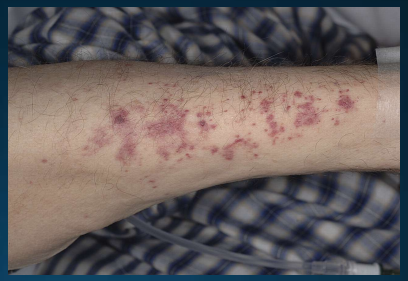
GENERAL ENDO		
CORTISOL AM	12/28/23	12.30
GLUCOSE, RANDOM	12/29/23	187 ▲
HEMOGLOBIN A1C	10/03/21	13.0 ▲
EST AVERAGE GLUCOSE	10/03/21	326
TSH	09/29/21	3.120
MISCELLANEOUS CH...		
RETINOL (VITAMIN A)	12/25/23	0.13 ▼
RETINYL,PALMITATE	12/25/23	<0.02
INTERPRETATION VITAMIN A	12/25/23	See Note

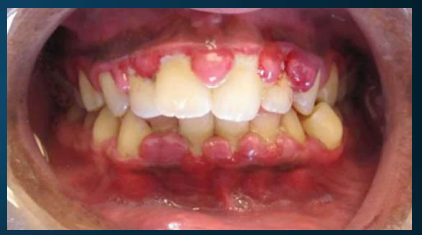
Component	5 d ago
Ref Range & Units	
PRE-ALBUMIN	5.4 ▼
20.0 - 40.0 mg/dL	

Component	5 d ago
TEST NAME	VITAMIN C PLASMA
SPECIMEN SOURCE	SODIUM/LITHIUM HEPARIN PLASMA
Reference Lab	ARUP
Ref Lab Test Number	0080380
RESULT:	SEE NOTE !

Comment: (NOTE)

Test name	Result	Flag	Units	RefIntvl
Vitamin C, Plasma	18	L	umol/L	23-114





Component	7 d ago
SPECIMEN DESCRIPTION	BLOOD (SITE 1 PERIPHERAL)
SPECIMEN TYPE	Blood
CULTURE RESULTS	NO GROWTH AT 5 DAYS
MICRONOTE	Tested at Bethesda North Hospital 10500 Montgomery Rd 45242
REPORT STATUS	12/28/2023 FINAL REPORT

ZINC, BLOOD

Collected:	12/25/23 0344
Result status:	Final
Resulting lab:	CENTRAL RECEIVING BN
Reference range:	60.0 - 120.0 ug/dL
Value:	44.4 ∨

Rocky Mountain Spotted Fever Antibodies, IgG and IgM

Status: Final result Visible to patient: No (not released) Next appt: 03/22/2024 at 02:40 PM in Gastroenterology (Khurram

0 Result Notes

Component Ref Range & Units	4 d ago
ROCKY MT SPOT FV IGG <1:64	**<1:64**

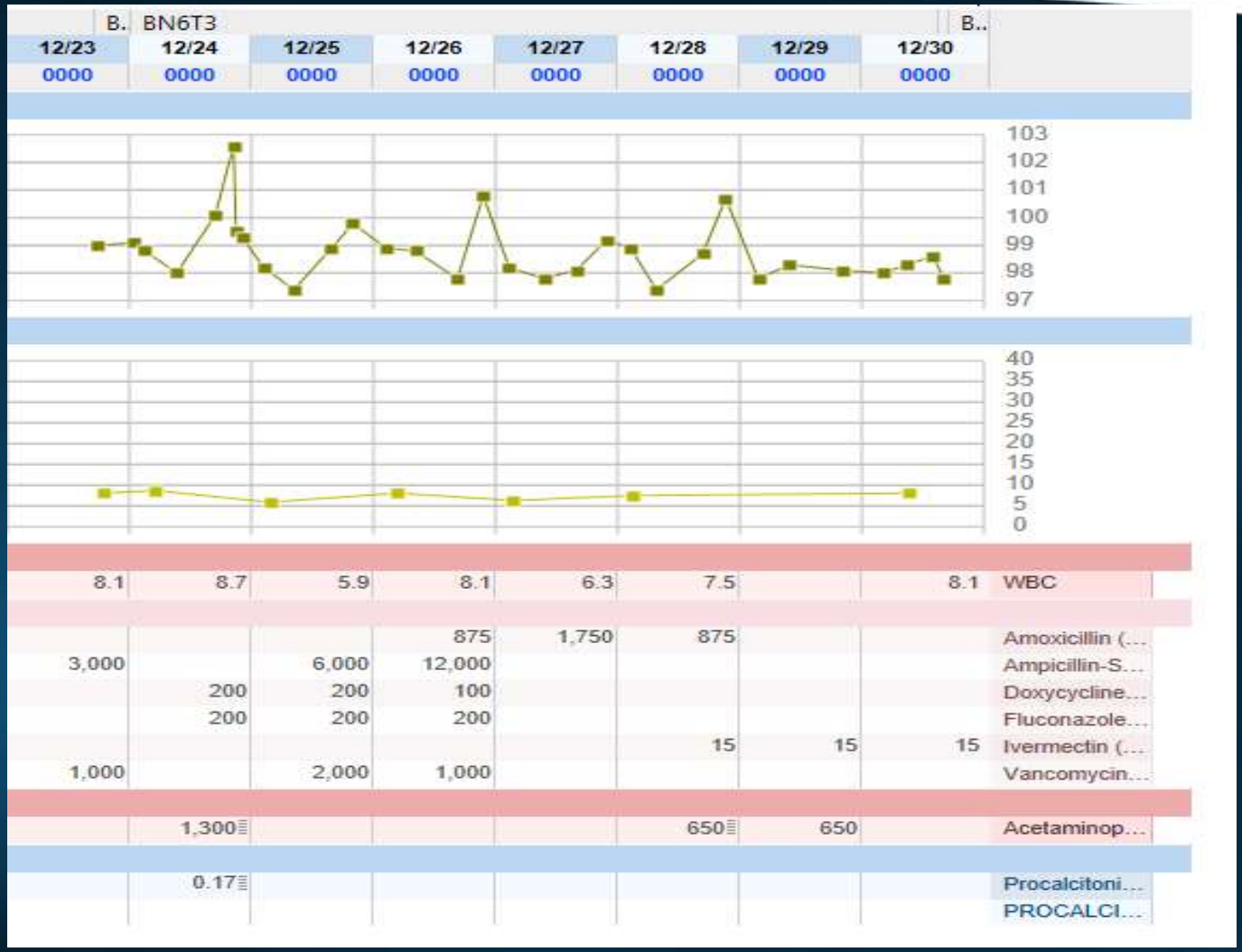
Comment: (NOTE)

INTERPRETIVE INFORMATION: Rickettsia rickettsii (Rocky Mtn. Spotted Fever) Ab, IgG

Less than 1:64 ..... Negative - No significant level of IgG antibody detected.

1:64 - 1:128 ..... Low Positive - Presence of IgG Antibody detected, suggestive of current or past infection.

1:256 or greater ..... Positive - Presence of IgG antibody detected, suggestive of current or past infection.


B. BN6T3
B..
12/23 12/24 12/25 12/26 12/27 12/28 12/29 12/30
0000 0000 0000 0000 0000 0000 0000 0000
103
102
101
100
99
98
97
40
35
30
25
20
15
10
5
0
8.1 8.7 5.9 8.1 6.3 7.5 8.1 WBC
875 1,750 875 Amoxicillin (...
3,000 6,000 12,000 Ampicillin-S...
200 200 100 Doxycycline...
200 200 200 Fluconazole...
15 15 15 Ivermectin (...
1,000 2,000 1,000 Vancomycin...
1,300 650 650 Acetaminop...
0.17 Procalcitoni...
PROCALCI...

STRONGYLOIDES ANTIBODY, IGG

Collected:	12/25/23 1538
Result status:	Final
Resulting lab:	CENTRAL RECEIVING BN
Reference range:	<=0.9 IV
Value:	2.1 ^
Comment:	(NOTE) INTERPRETIVE INFORMATION: Strongyloides Ab, IgG by ELISA 0.9 IV or less..... Negative - No significant level of Strongyloides IgG antibody detected. 1.0 IV.....Equivocal - The Strongyloides IgG antibody result is borderline and therefore inconclusive. Recommend retesting the patient in 2-4 weeks, if clinically indicated. 1.1 IV or greater ... Positive - IgG antibodies to Strongyloides detected, which may suggest current or past infection.

Strongyloidiasis is caused by infection with the soil-transmitted helminth Strongyloides stercoralis.

This organism is capable of completing its life cycle entirely within the human host, in contrast with all other soil-transmitted helminths that cannot replicate within hosts and require exogenous reinfections to sustain their life cycle.

As a consequence, infectious-stage larvae develop in the gastrointestinal tract and endogenously propagate ongoing infection. Therefore, chronic asymptomatic infection can be sustained for decades, and clinical manifestations can occur long after the initial infection. In addition, among patients with subclinical infections who subsequently become immunosuppressed, larval reproduction can lead to disseminated infection.

- Differential diagnosis is broad:

Infectious:

- Had a fever but it would be difficult to explain the distribution of the rash with a specific bacterial infection, even though the patient had a fever, he may have a superimposed bacterial infection but as of now there is no isolation on blood cultures. If this is eczema patients can develop a superimposed bacterial infection with group A strep or Staph aureus, will screen for close 2. May need de-escalation of antibiotic therapy. Can continue coverage for SSTI until GAS - MRSA is ruled out, seems unlikely with normal wbc / normal PCT / neg blood cultures / distribution of the rash
- I cannot think of any viral infection with the distribution of the rash or any viral infection that can match his symptoms. Parvovirus B19 it is a possibility when exposed to kids in school age but still I think that would be low in the differential based on the distribution of the rash and his symptoms, some of them chronic. I d expect pancytopenia and more arthralgias.
- Fungal etiology I think will be extremely unlikely
- Parasites: Will check for strongyloidiasis given a recent trip to Mexico but 3 there is no clear recent exposure to corticosteroids and the distribution of the rash would be atypical / no eosinophilia
- Tick-borne diseases: seems unlikely (no leucopenia/thrombocytopenia, no increased LFTs, no epidemiology, its winter)
- Mycobacteria's: Unlikely. Will check a Quantiferon but this presentation is not typical of TB

Non-infectious

- Nutritional deficiencies: To me for nutritional deficiencies are high in the differential, after having a conversation with him about his diet, his diet is very deficient. I think that PELLAGRA can be a possibility but he does not have the typical neck rash (but considering that the we are in winter it may be possible), does not have diarrhea, and apparently no cognitive impairment or memory loss. I think the rash in both hands may be very similar to cases that I have seen of pellagra, niacin deficiency is a possibility so vitamin B3 levels will be checked. Zinc deficiency is also another possibility that need to be checked. No clear signs or symptoms of scurvy.
- Dermatological diseases: An atypical presentation of eczema or psoriasis are in the differential, a punch biopsy was already done and we are waiting for the results. Porphyria is possible but I don't see much blistering (but it is distributed on sun-exposed areas)
- Autoimmune disease/paraneoplastic syndrome: Dermatomyositis or polymyositis are in the differential diagnosis when the rash and limited to both hands and periorbital but I do not see the typical "Gottron papules" or "mechanic hands". The fact that he is losing so much weight can be the manifestation sometimes of these diseases as a paraneoplastic syndrome. Will check his CK levels and a Chest X ray along with antibodies (anti-Jo-1). SLE and RA seems less likely but will get an ANA titer.
- Paraneoplastic syndrome: including Glucagonoma (had >>>> Glucose / hyperosmolar + the rash - although not typical -). Other malignancies (Lung - Colon - Pancreas) is worth checking for
- Endocrine: Addison's ? (Hyponatremia / weight loss), the rash is not typical

Final Pathologic Diagnosis
Skin of left forearm, punch biopsy:
- Lichenoid dermatitis. See comment.

Comment(s)
The findings are those of a bandlike lichenoid inflammatory infiltrate within the superficial papillary dermis and extending into the mid reticular dermis. The inflammatory infiltrate is comprised of lymphomononuclear cells, eosinophils and neutrophils. A grenz zone is present with mild dermal papillary edema noted. The overlying epidermis is mildly spongiotic. The histologic differential diagnosis includes Sweet syndrome, bowel associated dermatosis, or a lichenoid drug reaction. PAS and AFB stains are performed and interpreted as negative for fungal elements and mycobacterial organisms respectively. Clinical and microbiologic correlation are essential.

Sweet syndrome (acute febrile neutrophilic dermatosis) is an uncommon inflammatory disorder characterized by the abrupt appearance of painful, edematous, and erythematous papules, plaques, or nodules on the skin.

Fever and leukocytosis frequently accompany the cutaneous lesions.

In addition, involvement of the eyes, musculoskeletal system, and internal organs may occur.

Assessment

1. **Rash hands - face mainly / Lichenoid dermatitis on biopsy** The histologic differential diagnosis includes ***Sweet syndrome, bowel associated dermatosis, or a lichenoid drug reaction. Strongyloides also possible per my discussion w Pathology***
2. **Positive serology for Strongyloides stercolaris**
3. **Zinc deficiency**
4. **Vitamin A deficiency**
5. **Vitamin C deficiency**
6. **Likely Malabsorption...cause?**
7. **Unintentional weight loss**
8. **Poor diet**
9. **Weakness - Fatigue**
10. **Likely alcohol-induced Neuropathy R leg**
11. **Hx ETOH abuse / cirrhosis... Chronic pancreatitis ?**
    a. LFTs-WNL
    b. ETOH level >10
12. **DM2 on insulin - uncontrolled -.**
13. **Antibiotics requiring intensive monitoring for toxicity**
    a. Monitor CBC, creatinine, LFTs
14. **No abx allergies**

- Start Ivermectin PO x2 days 200 ug/kg/day
- Send Ova & parasites in stool, may check a blood agar for serpiginous - migrating bacterial colonies to see if he has ACTIVE Strongylodiasis (serology can be a oast exposure)---> **BIOHAZARD for lab workers, message sent.**
- Follow HTLV-1 serology (predispose to Strongyloides hyperinfection syndrome and can cause rash)
- Aggressive Vitamin D replacement
- Aggressive Niacin replacement
- Aggressive Zinc replacement
- Aggressive vitamin A replacement
- Follow vitamin measurements pending (B3-B6)
- *I wonder if he has GI absorption issues / malabsorption, screen for IBD / Celiac disease? / Whipple's / H.pylori ---> MALT lymphoma?*
- Unifying diagnosis remains unknown
- EGD - Colonoscopy tomorrow w Biopsies (PAS stains needed for T.whipelli)
- Does he need pancreatic enzymes?


From diapers to death…
From bread to beer…
Yeasts are the beasts

HPI

- 51 year-old male with hx of DM2, paraplegia, complicated GU hx s/p multiple procedures, chronic bilateral percutaneous nephrostomy tube (PCN), s/p exchange, multiple medical morbidities admitted from home with onset of fever and concern for need for IV abx.
- He states he as ill a couple of days PTA, but delayed admission as his father was in hospice care.
- He was placed on Augmentin after his PCN exchange for possible UTI but developed significant diffuse drug rash.
- He was transferred to ICU the night of admission with high fevers to 104, chills and rigors.

Patient Lines/Drains/Airways Status

Active LINES/DRAINS/AIRWAYS

Name	Placement date	Placement time	Site	Days
Port A Cath 06/18/23 Left Subclavian	06/18/23	0312	Subclavian	1
Colostomy LLQ	11/07/22	0700	LLQ	224
Urostomy Ileal conduit Midline;RLQ	11/07/22	0700	Midline;RLQ	224
Ureteral Drain/Stent Right ureter 10.2 Fr.	05/10/23	1516	Right ureter	39
Wound/Skin Exceptions 11/07/22 Sacrum Medial	11/07/22	0250	Sacrum	224
Wound/Skin Exceptions 11/07/22 Buttocks Mid	11/07/22	—	Buttocks	224
Wound/Skin Exceptions 11/16/22 Other (Comment) Foot Anterior;Right red large abrasion	11/16/22	1600	Foot	214
Wound/Skin Exceptions 11/16/22 Other (Comment) Knee Anterior;Right;Posterior scar tissue that was bumped on bed railing and started bleeding	11/16/22	1600	Knee	214
Wound/Skin Exceptions 06/18/23 Knee Anterior;Left	06/18/23	2300	Knee	less than 1
Nephrostomy	06/15/23	1225	Left	3
Nephrostomy	06/15/23	1225	Right	3

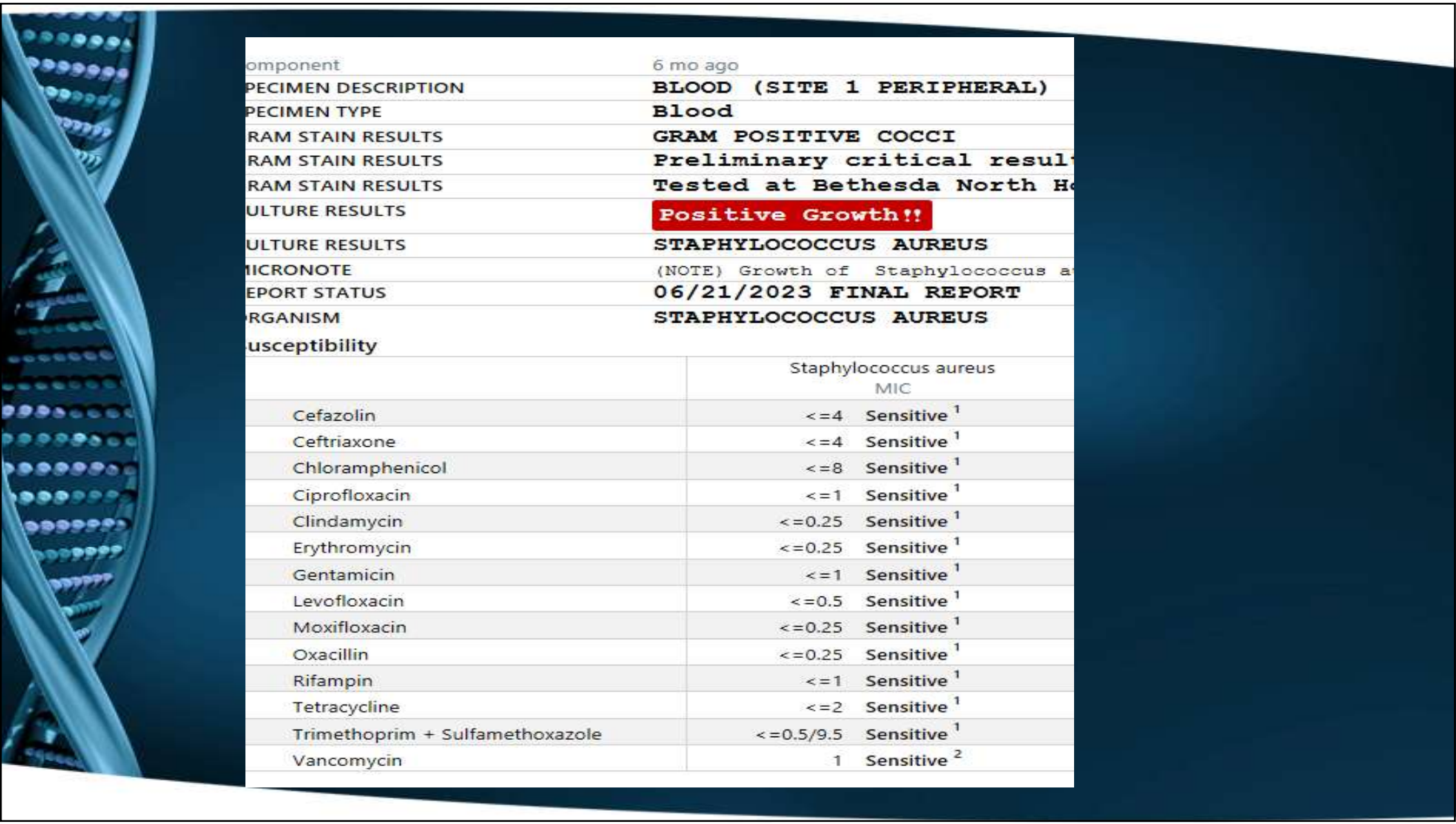
Labs/Cultures:

Recent Labs

	06/18/23 0440	06/18/23 2225	06/19/23 0010
WBC	**10.6***	--	**11.5***
HGB	**11.8***	--	**10.4***
HCT	**37.6***	**39***	**33.0***
MCV	**77.5***	--	**77.5***
PLT	355	--	320

Recent Labs

	06/18/23 0418	06/19/23 0010
NA	**131***	**130***
K	4.0	4.1
CL	101	102
CO2	**20***	**14***
AGAP	10	14
GLU	86	**121***
BUN	**27***	23
CRET	**1.63***	**1.50***
CA	9.3	**8.2***
MG	--	**1.6***
PHOS	--	**1.8***
ALB	3.6	**3.0***
TP	7.6	--
ALT	33	--



omponent	6 mo ago
PECIMEN DESCRIPTION	BLOOD (SITE 1 PERIPHERAL)
PECIMEN TYPE	Blood
RAM STAIN RESULTS	GRAM POSITIVE COCCI
RAM STAIN RESULTS	Preliminary critical resul
RAM STAIN RESULTS	Tested at Bethesda North H
ULTURE RESULTS	Positive Growth!!
ULTURE RESULTS	STAPHYLOCOCCUS AUREUS
ICRONOTE	(NOTE) Growth of Staphylococcus a
EPORT STATUS	06/21/2023 FINAL REPORT
RGANISM	STAPHYLOCOCCUS AUREUS

usceptibility

	Staphylococcus aureus MIC	
Cefazolin	<=4	Sensitive [1]
Ceftriaxone	<=4	Sensitive [1]
Chloramphenicol	<=8	Sensitive [1]
Ciprofloxacin	<=1	Sensitive [1]
Clindamycin	<=0.25	Sensitive [1]
Erythromycin	<=0.25	Sensitive [1]
Gentamicin	<=1	Sensitive [1]
Levofloxacin	<=0.5	Sensitive [1]
Moxifloxacin	<=0.25	Sensitive [1]
Oxacillin	<=0.25	Sensitive [1]
Rifampin	<=1	Sensitive [1]
Tetracycline	<=2	Sensitive [1]
Trimethoprim + Sulfamethoxazole	<=0.5/9.5	Sensitive [1]
Vancomycin	1	Sensitive [2]

	Reaction	Severity
Allergies		
Penicillins	Hives, Swelling	High
Childhood reaction - throat swelling and hives; tolerates cephalosporins per Infectious Disease Has received ceftriaxone (5/2022 and 10/2022) and cefepime in the past (8/2014) Rechallenged with amoxicillin-clavulanate by PCP June 2023, broke out in hives		
Micafungin	Rash	Not Specified

Placed on IV meropenem

ENTEROCOCCUS FAECALIS	Not Detected
ENTEROCOCCUS FAECIUM	Not Detected
STAPHYLOCOCCUS	Not Detected
S. AUREUS	Not Detected
S. EPIDERMIDIS	Not Detected
S. LUGDUNENSIS	Not Detected
STREPTOCOCCUS	Not Detected
S. AGALACTIAE	Not Detected
S. PNEUMONIAE	Not Detected
S. PYOGENES	Not Detected
LISTERIA MONOCYTOGENES	Not Detected
BACTEROIDES FRAGILIS (ANAEROBE)	Not Detected
ACINETOBACTER BAUMANNII	Not Detected
ENTEROBACTERIALES	Not Detected
E. CLOACAE COMPLEX	Not Detected
E. COLI	Not Detected
K. AEROGENES	Not Detected
K. OXYTOCA	Not Detected
K. PNEUMONIAE	Not Detected
PROTEUS	Not Detected
SALMONELLA SP.	Not Detected
S. MARCESCENS	Not Detected
HAEMOPHILUS INFLUENZAE	Not Detected
NEISSERIA MENINGITIDIS	Not Detected
PSEUDOMONAS AERUGINOSA	Not Detected
STENOTROPHOMONAS MALTOPHILIA	Not Detected
CANDIDA ALBICANS	Not Detected
CANDIDA AURIS	Not Detected
CANDIDA GLABRATA	Not Detected
CANDIDA KRUSEI	Not Detected
CANDIDA PARAPSILOSIS	DETECTED !
CANDIDA TROPICALIS	DETECTED !

BLOOD CULTURE NUCLEIC ACID ID & RESISTANCE MARKERS

FUNGUS SUSCEPTIBILITY

Status: Final result Visible to patient: Yes (not seen) Next appt: 01/24/2024 at 12:

0 Result Notes

Component	6 mo ago
FUNGUS SUSCEPTIBILITY	**SEE NOTES**
Comment: SEE NOTE	
(NOTE)	
Candida parapsilosis	
Organism identified by client	
YSTMIC	
Anidulafungin	1 Suscept
Micafungin	2 Suscept
Caspofungin	1 Suscept
5-Fluorocytosine	0.12 None
Posaconazole	0.06 None
Voriconazole	0.5 Intermed
Itraconazole	0.12 None
Fluconazole	64 Resist
Amphotericin B	0.5 None

Fluconazole 800 daily
Surveillance blood cultures-negative

SPECIMEN DESCRIPTION	Urine, Indwelling Catheter
SPECIMEN DESCRIPTION	Tested at Bethesda North H
SPECIMEN TYPE	Urine
SPECIMEN TYPE	Tested at Bethesda North H
CULTURE RESULTS	Positive Growth !
	PSEUDOMONAS AERUGINOSA
MICRONOTE	(NOTE) >100,000 CFU/mL Pseudomonas
REPORT STATUS	06/21/2023 FINAL REPORT
ORGANISM	PSEUDOMONAS AERUGINOSA
Resulting Agency	CN

Susceptibility

	Pseudomonas aeruginosa MIC	
Amikacin	<=16	Sensitive [1]
Aztreonam	>16	Resistant [2]
Cefepime	16	Intermediate [3]
Ceftazidime	>16	Resistant [2]
Ceftazidime/Avibactam	8 SUSCEPTIBLE	Sensitive
Ceftolozane/Tazobactam	<=2 SUSCEPT...	Sensitive
Ciprofloxacin	2	Resistant [2]
Gentamicin	<=2	Sensitive [1]
Imipenem	>8	Resistant [2]
Levofloxacin	>4	Resistant [2]
Meropenem	>8	Resistant [2]
PIP Tazo	>64	Resistant [2]
Tobramycin	<=2	Sensitive [1]

- Meropenem changed to…..
  - AVYCAZ® (ceftazidime and avibactam)
  - If used for intra-abdominal infection, need to add metronidazole,

ASSESSMENT

1. MSSA bacteremia
   A. 2/2 sets 6/18 positive
   B. 2/2 sets 6/19 no growth
   C. PORT removed 6/22
   D. TEE no endocarditis
2. Candidemia
   A. 1/2 sets 6/18 positive for **C.tropicalis** and **C.parapsilosis**
   B. 1/2 sets 6/19 positive for **C.parapsilosis**
3. UTI due to **P.aeruginosa**
   A. Pyuria and positive urine culture 6/18
   B. Repeat U/A 6/23 no significant pyuria; culture **E.faecium**
4. Bilateral PCN; exchanged 6/15/23
5. Right ureteral stent
6. Multiple co-morbidities
7. Penicillin allergy- hives
8. Micafungin allergy- rash

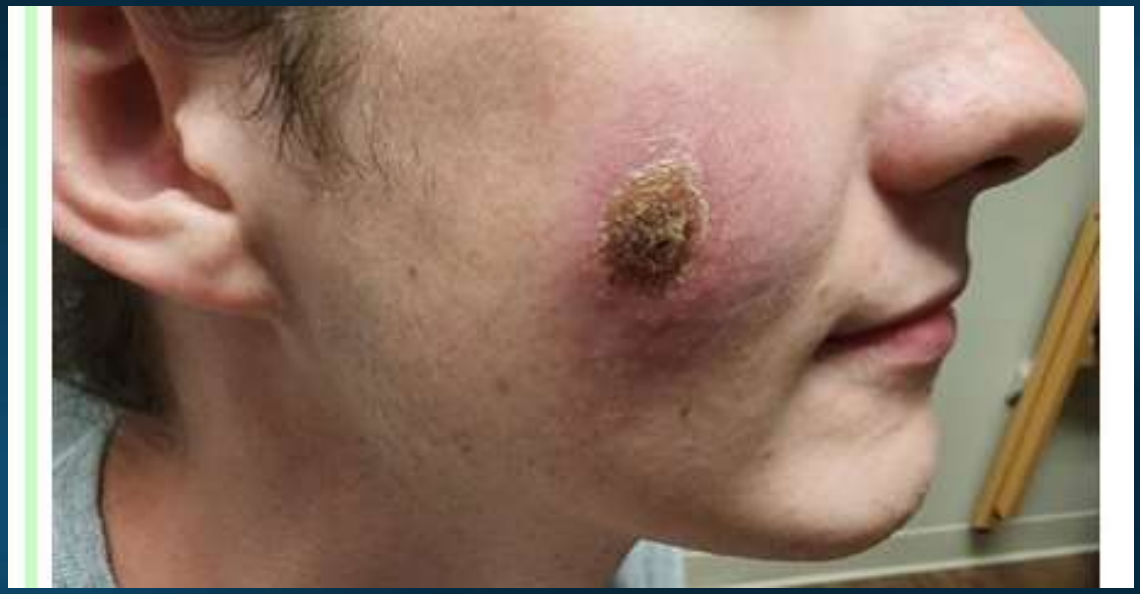
RECOMMENDATIONS

1. Continue daptomycin through 7/5
2. Continue fluconazole through 7/12

Ophthalmic endophthalmitis:
Eye pain, discharge, red eyes,
Decreased vision,
Swollen eyes/eyelids


Travel to the Amazon rainforest

- 21 year-old male w/n medical hx traveled with friends to Amazon rainforest in Brazil. He was working in the jungle there.
- He swam, ate local food and received numerous bug bites but had no animal exposure
- When he returned to US, he developed a nodular lesion on his right cheek that got progressively worse
- Lesion is painless and he has no cervical or axillary lymphadenopathy and no other lesions
- No fevers, no allergies
- Present to urgent care and was given course of doxycycline without any effect



Biopsy

The patient's clinical history with concern for leishmaniasis is noted. Microscopic sections show prominent superficial epidermal necrosis with marked overlying serum crust and hyperparakeratosis. Within the dermis there is a brisk mixed inflammatory infiltrate that includes numerous histiocytes filled with small round parasites with eccentrically located basophilic bodies that are positive with Giemsa stain. The organisms are negative for PAS and GMS fungal stains. These findings strongly favor leishmaniasis; however, toxoplasmosis can have a similar histologic picture. Confirmation with other clinical testing is therefore recommended.

Report from the CDC

Test	Result
Leishmania Species Identification*	
Leishmania PCR and DNA Sequencing*	L. braziliensis†

Comments and Disclaimers

† This test does not distinguish between the following two Leishmania species: L. (Viannia) braziliensis and L. (V.) peruviana.

* DNA sequencing of PCR amplicons were performed in the CDC Special Bacteriology Reference Laboratory (CLIA #11D0668319).

Reference value: Negative

Leishmaniasis

- parasitic disease that is found in parts of the tropics, subtropics, and southern Europe
- classified as a neglected tropical disease (NTD)
- caused by infection with Leishmania parasites, which are spread by the bite of phlebotomine sand flies
- several different forms of leishmaniasis in people.
  - most common forms are cutaneous leishmaniasis, which causes skin sores, and visceral leishmaniasis, which affects several internal organs (usually spleen, liver, and bone marrow)

Treatment

- Lesions may heal on own-often take months or longer
- Oral Impavido (Milnefosine)
  - Antiparasitic Agent
  - 50 mg TID x 28 days
  - Monitor platelets, renal, LFTs
- Disposition
  - Little change with medication
  - Referred for plastic surgery

51-year-old female who was previously admitted on 1/26/24, discharged on 1/29/24 with dx with NSTEMI. Prior to that admission, she had 18 hours of nausea and vomiting along with neck pain and palpitations. No hx of trauma or other injury.

She underwent cardiac cath on 1/29 –mild CAD and 1/28 2D echo-WNL

Called and sent back to the ED due to abnormal blood culture obtained on initial admission.

Afebrile, normal CBC, ESR, CRP. On previous admission, WBC 11.6, afebrile

She has remained afebrile and is currently in IV Unasyn.

Culture Blood Adult - Second Set

Order: 511309780

Status: Final result Visible to patient: Yes (not seen) Next appt: None

Specimen Information: Blood (Peripheral Site 2)

0 Result Notes

Component	6 d ago
SPECIMEN DESCRIPTION	BLOOD (SITE 2 PERIPHERAL)
SPECIMEN TYPE	Blood
CULTURE RESULTS	Positive Growth!!
CULTURE RESULTS	EIKENELLA CORRODENS
MICRONOTE	(NOTE) Growth of Eikenella corrodens No further workup. ***Corrected Results Above*** EIKENELLA CORRODENS BETA LACTAMASE Negative Tested at: Preferred Lab Partners, 1 Medical Village Drive 41017
REPORT STATUS	02/01/2024 FINAL REPORT
Resulting Agency	RN

Eikenella Corrodens

- Gram-negative facultative anaerobic bacillus usually associated with human bites
- One of the HACEK organisms
  - HACEK group (Haemophilus species, Aggregatibacter actinomycetemcomitans, Cardiobacterium hominis, Eikenella corrodens, Kingella kingae) includes weakly virulent, gram-negative organisms that primarily cause endocarditis
- Treatment
  - IV ampicillin-subactam
  - amoxicillin-clavulanate (Augmentin)

So where did this come from????

Patient has severe anxiety and would continuously bite her lip

Treatment—aimed at anxiety and obviously stop biting her lip!


The Importance of MICs
Minium Inhibitory Concentration

Briefly 70 year old female with TAVR MRSA endocarditis (12/14 & 12/15/2023 cx) with potential aortic root abscess treated at Christ Hospital on IV daptomycin with PICC = Rifampin PO, admitted for **acute ischemic stroke s/p Emergent thrombectomy done on 1/17/24 + relapsed MRSA bacteremia.** Seen by Dr

"....Given elevated Cr and LFTs, vancomycin/gentamicin/rifampin not good option. She was transitioned to daptomycin + ceftaroline which has some evidence for treatment of PVE. However, ceftaroline is cost-prohibitive for home ($1000/wk per case management) so she will be discharged on daptomycin monotherapy....."

Organism	**Staph aureus MRSA !**
Blood Culture, Routine	!
	POSITIVE for Isolated two of two sets CONTACT PRECAUTIONS INDICATED
Resulting Agency	MERCY HEALTH WEST HOSPITAL LAB

Susceptibility

Organism	Antibiotic	Method	Susceptibility
Methicillin-Resistant Staphylococcus aureus	ceFAZolin	BACTERIAL SUSCEPTIBILITY PANEL BY MIC	8 mcg/mL: Resistant
Methicillin-Resistant Staphylococcus aureus	clindamycin	BACTERIAL SUSCEPTIBILITY PANEL BY MIC	<=0.5 mcg/mL: Sensitive
Methicillin-Resistant Staphylococcus aureus	DAPTOmycin	BACTERIAL SUSCEPTIBILITY PANEL BY MIC	<=0.5 mcg/mL: Sensitive
Methicillin-Resistant Staphylococcus aureus	erythromycin	BACTERIAL SUSCEPTIBILITY PANEL BY MIC	>4 mcg/mL: Resistant
Methicillin-Resistant Staphylococcus aureus	linezolid	BACTERIAL SUSCEPTIBILITY PANEL BY MIC	2 mcg/mL: Sensitive
Methicillin-Resistant Staphylococcus aureus	oxacillin	BACTERIAL SUSCEPTIBILITY PANEL BY MIC	>2 mcg/mL: Resistant
Methicillin-Resistant Staphylococcus aureus	tetracycline	BACTERIAL SUSCEPTIBILITY PANEL BY MIC	<=4 mcg/mL: Sensitive
Methicillin-Resistant Staphylococcus aureus	trimethoprim-sulfamethoxazole	BACTERIAL SUSCEPTIBILITY PANEL BY MIC	<=0.5/9.5 mcg/mL: Sensitive
Methicillin-Resistant Staphylococcus aureus	vancomycin	BACTERIAL SUSCEPTIBILITY PANEL BY MIC	1 mcg/mL: Sensitive

Two days late blood cleared

Component	7 d ago
SPECIMEN DESCRIP-TION	BLOOD (SITE 1 PERIPHERAL)
SPECIMEN TYPE	Blood
GRAM STAIN RESULTS	GRAM POSITIVE COCCI IN CLUSTERS
GRAM STAIN RESULTS	Preliminary critical result called to and read back by: [redacted] 1/18/2024 0835 CW
GRAM STAIN RESULTS	Tested at [redacted] 45242
CULTURE RESULTS	Positive Growth!!
CULTURE RESULTS	METHICILLIN RESISTANT STAPHYLOCOCCUS AUREUS
MICRONOTE	(NOTE) Growth of Methicillin Resistant Staphylococcus aureus Tested at: Preferred Lab Partners, 1 Medical Village Drive 41017
REPORT STATUS	01/22/2024 FINAL REPORT
ORGANISM	METHICILLIN RESISTANT STAPHYLOCOCCUS AUREUS

Susceptibility

	Methicillin resistant staphylococcus aureus MIC	
Ceftaroline	<=0.5	Sensitive [1]
Chloramphenicol	<=8	Sensitive [1]
Ciprofloxacin	<=1	Sensitive [1]
Clindamycin	<=0.25	Sensitive [1]
Daptomycin	4	
Erythromycin	>4	Resistant [2]
Gentamicin	<=1	Sensitive [1]
Oxacillin	>2	Resistant [2]
Rifampin	<=1	Sensitive [1]
Tetracycline	<=2	Sensitive [1]
Trimethoprim + Sulfamethoxazole	<=0.5/9.5	Sensitive [1]
Vancomycin	2	Sensitive [3]

Minimum Inhibitory Concentration MIC) is the lowest drug concentration that prevents visible microorganism growth after overnight incubation.

Recommendations

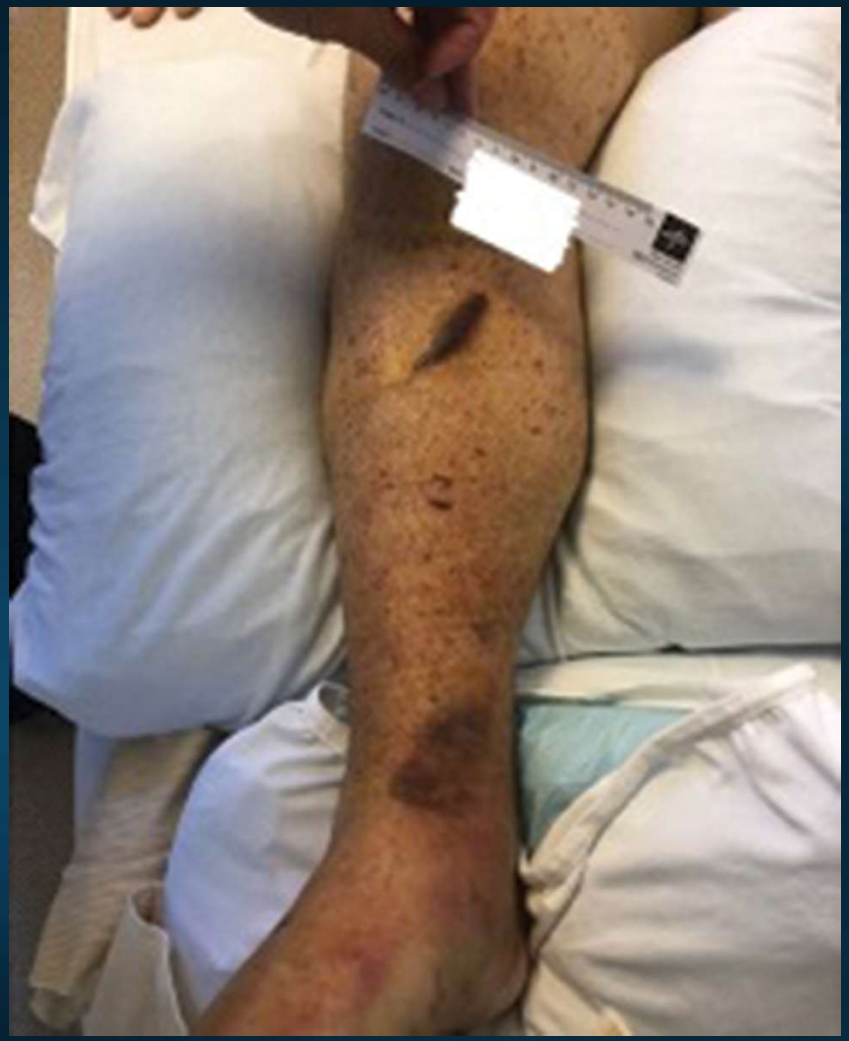
Daptomycin MIC (mg/L) breakpoints for *Enterococcus faecium*[1]			
	Susceptible (S)	Susceptible dose-dependent (SDD)	Resistant (R)
Daptomycin MIC	-	≤4	≥8
Recommended dosing*	-	8-12 mg/kg Q24H	-

*Recommended dosing is for adult patients with normal renal function. Please see UNC Pharmacy Clinical Guidelines for dosing adjustments in patients with renal dysfunction: https://unchcs.intranet.unchealthcare.org/dept/Pharmacy/mc/Pages/ClinicalGuidelines.aspx
Dose based on actual total body weight for non-obese patients. For BMI ≥ 30 use adjusted body weight. AdjBW= IBW + 0.4(TBW-IBW)

- *Switch Dapto (MIC = 4) to Vancomycin IV (now MIC = 2, it was 1 before); likely the MRSA is on its way to be hVISA or VISA soon due to progressive cell wall thickening.*
- *Continue Ceftaroline IV but increase q8 hs (HIGH burden of disease), MIC to Ceftaroline is pending*
- *Ok to continue Rifampin as long as there are no significant D-D interactions (Susceptible to Rifampin) now that the burden of disease decreased (to avoid the inoculum effect and R).*
- *Linezolid remains an option, for now BC cleared. Other options like Quinolones / TMP-SMX / Tetracyclines / Clindamycin are only 2nd or 3rd line agents.*
- New BC on 1/19----> Ngtd
- New BC on 1/20----> Ngtd

VISA- vancomycin intermediate to staph aureus


Something you don’t often see



Clinical picture Scordo

- A 35-year-old male presented to the emergency department with complaints of right leg pain, swelling, and weakness. The symptoms were preceded by an injury he had two weeks before. He reported slipping and scraping his right lower leg around the site of pain and swelling. Additionally, the patient noted worsening progressive dyspnea and light-headedness that started by the time of the injury.
- Medical history was pertinent for irritable bowel syndrome (IBS) constipation type. The patient reported that he was following a homemade diet mostly restricting foods with highly fermentable oligo-, di-, monosaccharides, and polyols (FODMAPs) as well as other symptom triggering foods due to IBS.
- Social history was negative for alcohol use, tobacco use or illicit drug use. Family history

- *Laboratory workup was notable for anemia (hemoglobin 8.9 g/dL, hematocrit 26%), leukocytosis (white blood count 14.7 thousand/mcL; neutrophil 13.20 thousand/mcL), thrombocytosis (platelets 543 thousand/mcL), low iron (iron 25 mcg/dL) and markedly low folate levels (folate <2.00 ng/mL).*
- *In light of patient's complaint of dyspnea, D-dimer was ordered and was found to be elevated; as a result, he underwent a computerized tomography (CT) angiogram of the chest which was negative for pulmonary embolus, pneumonia, or pulmonary edema.*

- *Additional workup also revealed elevated inflammatory markers (erythrocyte sedimentation rate: 38 mm/hour, C-reactive protein: 53.30 mg/L). In consideration of the laboratory results and the fever, a diagnosis of osteomyelitis was strongly suspected.*
- *A magnetic resonance imaging (MRI) of the right lower extremity was ordered and revealed generalized subcutaneous edema throughout the calf with a small amount of fluid tracing down the deep to the medial head gastrocnemius; ill-defined muscle edema was also noted in the anterior, lateral, and posterior compartments. Imaging results ruled out osteomyelitis; however, infectious myositis/cellulitis was suspected. In that sense, empiric antibiotic treatment for a soft tissue infection of the right lower extremity was started with oral doxycycline 200 mg per day.*

- Over the next three days, the pain and swelling were more severe and no significant improvement was observed. Upon closer inspection of the skin, the patient was noted to have follicular hyperkeratosis and perifollicular hemorrhage; that in combination with his significantly restrictive diet due to IBS, raised the suspicion for vitamin C deficiency.
- An in-depth investigation was conducted in regard to patient's symptoms and dietary patterns, at which point he reported intermittent gum bleeding as well.
- Punch biopsy of the wound was performed to obtain clarity, results of which revealed dilated hair follicle containing a "corkscrew" hair with perifollicular hemorrhage and perifollicular and perivascular lymphocytic inflammation. As a result, vitamin C level was tested which was <5 µmol/L thereby confirming the diagnosis of scurvy.

Treatment

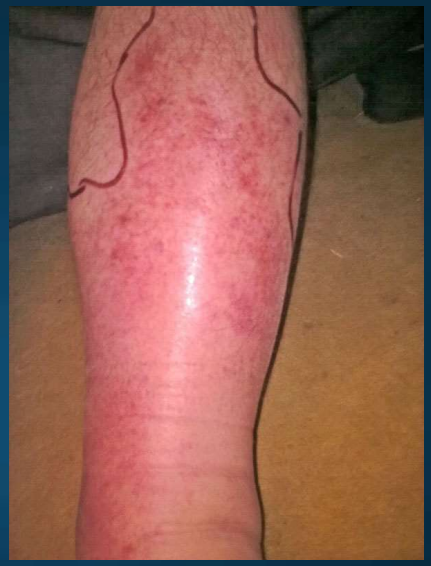
- IV vitamin C 1 g per day with significant improvement and was discharged home 4 days after in a stable condition under supplementation I vitamin C 1 g per day
- Meet with nutritionist


Last but not least…..

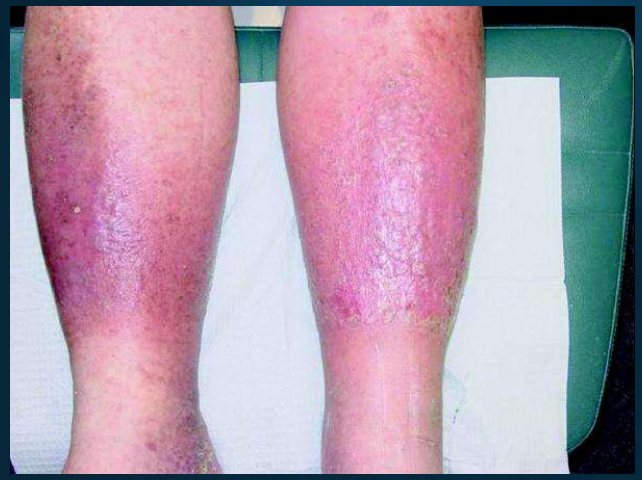
Two patients for you to see

- #1 27 year old male with pain right leg and redness that has developed rather rapidly over the past day. Doesn't feel right, thus admitted via the ED.
- #2 62 year old female that has bilateral lower leg erythema that her PCP has been treating with multiple antibiotics with no improvement admitted due to "failed treatment"

Case #1



Case # 2



Used from personal practice images


DEATH BY
POWERPOINT

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