Pediatrics– H&P #1

Chief Complaint: “fever and cough” since this morning at 9:30 AM

HPI

4-year-old male with a history of alpha thalassemia trait and hemoglobin SS sickle cell disease (taking hydroxyurea), complicated by splenic sequestration in January 2025, requiring platelet and PRBC transfusions, presents with fever since this morning. Mother reports the patient awoke feeling warm with a sublingual temperature of 102°F, associated with a non-productive cough noted earlier today. The patient has otherwise been acting at baseline, playful, with decreased appetite since yesterday. He is tolerating oral intake without vomiting, constipation, or diarrhea. Mother denies rashes, pain, sore throat, abdominal discomfort, chest pain, wheezing, shortness of breath, recent travel, or injuries. The patient attends daycare with unknown sick contacts, and no known exposures were reported by teachers. Acetaminophen was last administered at 9:30 AM with some improvement in fever. Immunizations are up to date, and the patient is on prophylactic penicillin VK for sickle cell disease.

Birth Hx

- Born at 37 weeks of gestation via normal spontaneous vaginal delivery

PMHx

- Sickle Cell Anemia (SS Trait), diagnosed prenatally, is taking folic acid, hydroxyurea, and prophylactic penicillin VK
- Alpha Thalassemia Trait, diagnosed on 08/30/2023

PSHx

- Hospitalized on 11/06/2024 for RSV infection
- Hospitalized on 01/23/2025 for splenic sequestration that required PRBC & platelet transfusions
- No known past surgeries or transfusions.

Medications

- Acetaminophen 160mg/5mL PRN for fever
- Folic Acid (Folvite) 1mg QD
- Hydroxyurea (Hydrea) 350mg QD
- Penicillin VK (Veetids) 250mg tablet BID (AM & PM)
- Pediatric Multivitamin Chewables

Allergies

- No known drug, food, or environmental allergies.

FHx:

- Maternal Grandfather → alive and well, DM 2
- Maternal Grandmother → alive and well, DM 2 & HTN
- Mother → alive and well, Sickle Cell Trait & Asthma
- Father → alive and well, no known medical history
- No siblings

SHx

- C. B. lives with father and mother in an apartment. Both parents are married, active, and involved in taking care of the child. Parents deny any pets, smoking, alcohol use, or drug use in the home. Mother and father are employed, and the child currently attends daycare.

ROS

General – Admits to fever. Denies unusual weight gain or weight loss.

Skin – Admits to skin feeling warmer than usual. Denies rashes, jaundice, or pallor of the skin.

HEENT – Denies sore throat, sneezing, conjunctivitis, discharge, or ear pain

Neck – Denies any neck pain or stiffness.

Chest/Cardiovascular – Denies any chest pain or tachycardia.

Pulmonary – Admits to cough. Denies shortness of breath or wheezing

Gastrointestinal – Denies abdominal pain, nausea/vomiting/diarrhea, or constipation.

Genitourinary – Denies urinary frequency, hematuria, or discharge.

Neurological – Denies headaches or dizziness.

Musculoskeletal – Denies trauma/injuries.

Hematologic – Denies any bruising or abnormal bleeding.

Vital Signs

Vitals	**12:04**	**16:25**	**20:40**
BP	88/62	80/60	84/63
P	164	160	138
RR	22	22	20
T (sublingual)	100.9 F	99.4 F	98.3 F
O2 Sat	98% on room air	99% on room air	98% on room air

Height: 40 in | **Weight:** 14.8 kg | **BMI:** 14.3

Physical Exam

General: Patient is well-appearing, playful, in no acute distress, and is watching iPad comfortably.

Skin: No signs of diaphoresis, cyanosis, or pallor. Warm to palpation.

HEENT: Head is normocephalic and atraumatic. Eyes are PERRL bilaterally, sclera is white, conjunctiva is pink, mucous membranes are pink and moist without lesions or exudates seen, TM is gray without bulging, erythema, or fluid bilaterally, oropharynx clear without erythema lesions, or exudates seen. Tonsils without hypertrophy and uvula is midline.

Cardiac: RRR with tachycardia. Radial pulses are 2+ bilaterally. No murmurs heard.

Lungs: Lungs are clear to auscultation bilaterally without stridor, wheezing, rhonchi, or rales. Normal breathing effort without retractions, belly breathing, or nasal flaring. Patient has an occasional dry cough.

Abdomen: Abdomen is soft, flat, and nondistended. Bowel sounds are normoactive in all 4 quadrants. There is no abdominal tenderness throughout.

Assessment

4-year-old male with PMHx of alpha-thalassemia trait, hemoglobin SS sickle cell disease, presents to the ER due to fever of 102F taken at home this morning associated with a non-productive cough. Patient was febrile at 100.9 F and tachycardic on 164 at triage. Patient is well-appearing, playful, and in no acute distress. Physical exam is normal without focal findings of an etiology. Based on history and presentation, symptoms are likely due to viral URI; however, given the patient's history of sickle cell disease, there is concern for sepsis/bacteremia.

D/Dx

1. Sepsis/Bacteremia
    a. Rationale: Febrile patient with HbSS sickle cell disease and functional asplenia is at high risk for invasive bacterial infection (e.g., Streptococcus pneumoinae, Haemophilus influenzae) and may appear well early, and tachycardia on exam increases concern.
2. Acute Chest Syndrome
    a. Rationale: Acute chest syndrome must be considered in any patient with sickle cell disease presenting with fever and cough, even in the absence of chest pain, hypoxia, or abnormal lung findings.
3. Pneumonia
    a. Rationale: Fever and cough raise concern for infectious pneumonia, particularly in patients with sickle cell disease who are at increased risk for pulmonary infections.
4. UTI
    a. Rationale: UTI is a common cause of fever without a clear source in young children and may present without urinary symptoms and sickle cell diseae can increase susceptibility.
5. URI
    a. Rationale: Well appearance, non-productive cough, daycare exposure, and response to acetaminophen are consistent with viral URI, though this is a diagnosis of exclusion in sickle cell disease.

Problem Lists & Plan

Problem: Fever in a child with hemoglobin SS sickle cell disease

- Rule Out: PNA, UTI, ACS, Bacteremia/Sepsis

Plan

- CBC w/ Differential, BMP, LFTs, Reticulocyte Count, LDH, Blood Cultures, VBG
- COVID/Flu/RSV Liat
- UA & UCx

- CXR
- Initiate broad-spectrum antibiotics, Ceftriaxone and Vancomycin, due to high risk of bacterial infection
- Initiate IV hydration with 0.9% NS
- Initiate Ibuprofen for persistent fever
- Continuous monitoring with reassessment pending laboratory and imaging results; anticipate transfer to Cohen's Children Hospital given sickle cell disease and fever

Labs/Imaging Results

COVID/Flu/RSV Liat – all negative

CBC w/ Differential

- WBC – 7.24
- RBC – 3.04 (↓)
- HGB – 8.6 (↓)
- HCT – 25.1 (↓)
- MCV – 82.6
- MCH – 28.3
- MCHC – 34.3
- RDW – 16.8 (↑)
- PLT – 175 (↓)
- Monocyte % – 3.6 (↓)
- Monocyte Abs – 0.26
- Neutrophil % – 23.3 (↓)
- Neutrophil Abs – 1.69 (↓)
- Lymphocyte % – 67.4 (↑)
- Lymphocyte Abs – 4.88 (↑)
- Eosinophil % – 5.0 (↑)
- Eosinophil Abs – 0.36 (↑)
- Basophil % – 0.3
- Basophil Abs – 0.02
- Immature Gran % – 0.4
- Immature Gran Abs – 0.03

BMP

- Sodium – 136 mmol/L
- Potassium – 5.1 mmol/L
- Chloride – 102 mmol/L
- CO_2 (Bicarbonate) – 22 mmol/L
- BUN – 15 mg/dL
- Creatinine – 0.7 mg/dL

- Glucose – 138 mg/dL (↑)
- Calcium – 9.4 mg/dL

LFTs

- AST – 48 U/L (↑)

- ALT – 32 U/L
- Alkaline Phosphatase – 210 U/L (↑)
- Total Bilirubin – 1.8 mg/dL (↑)
- Direct Bilirubin – 0.4 mg/dL
- Albumin – 4.1 g/dL
- Total Protein – 6.8 g/dL

Reticulocyte Count
- Reticulocyte % – 4.6 (↑)
- Reticulocyte Abs – 0.1398 (↑)

LDH
- LDH – 520 (↑)

VBG
- pH – 7.36
- pCO_2 – 42 mmHg
- pO_2 – 38 mmHg
- HCO_3^- – 23 mEq/L
- Base Excess – −1
- Lactate – 1.4 mmol/L

UA
- Specific Gravity – 1.013
- Protein Urine – Negative
- Glucose Urine – 500 (↑) – most likely due to stress hormones (catecholamines, cortisol)
- Ketones Urine – 40 (↑) – most likely due to decreased appetite
- Bilirubin Urine – Negative
- Blood Urine – Negative
- Urobilinogen Urine – 0.2
- Nitrite Urine – Negative
- Leukocyte Esterase Urine – Negative
- Squamous Epithelial Cells Urine – 0-5
- WBC Urine – 0.9
- RBC Urine – 1.9
- Bacteria Urine – None Seen
- pH Urine – 5.5
- Appearance Urine – Clear
- Color Urine – Yellow

CXR (AP & Lateral) – No focal consolidation or acute pulmonary abnormality.

Urine Cx – pending
- Preliminary → Culture positive, 10,000 - 49,000 CFU/mL. Identification to follow

Blood Cx – pending

Electrolytes and renal function were within normal limits, suggesting no acute renal involvement or severe hemolysis. Mild hyperglycemia with associated glucosuria and ketonuria is consistent with a stress response and decreased oral intake rather than diabetic ketoacidosis, supported by normal pH and bicarbonate on VBG. Elevated LDH and indirect bilirubin reflect baseline hemolysis associated with hemoglobin SS disease.

Disposition

C.B. requires inpatient admission and is transferred via ambulance to Cohen's Children Hospital, which has an inpatient pediatric service. Given the patient's history of hemoglobin SS sickle cell disease and fever, he requires continued IV broad-spectrum antibiotics, IV hydration, close monitoring, and further diagnostic evaluation while awaiting blood and urine culture results. Admission is warranted due to the high risk of invasive bacterial infection in functionally asplenic patients, despite a reassuring initial examination and laboratory workup.