Subacute Bacterial Endocarditis: The Great Imitator

Lavanya Garnepudi, MD[1]; Jamie Hood, DO[1]
Geisinger Medical Center, Danville, PA

Introduction

The presentation of bacterial endocarditis varies greatly from patient to patient. The most common pathogens are *Streptococcus Viridans*, which generally leads to subacute endocarditis, while *Staphylococcus Aureus* leads to acute endocarditis.[1] Subacute bacterial endocarditis can follow an indolent course, which can delay diagnosis, increasing the risk of morbidity and mortality. We report a case of a patient with subacute infective endocarditis (IE) who presented with profound anemia and multiple septic emboli.

Objective

This case highlights the importance of maintaining a broad differential while evaluating patients with profound anemia, and otherwise no signs or symptoms of acute occult blood loss

Case Presentation

- A 66-year-old male presented to the Emergency Department at the request of his primary care doctor for further work up of acute anemia with hemoglobin of 7.6 noted on routine labs.
- Endorsed 6 months of generalized weakness, night sweats, fevers, decreased appetite, a 50-pound weight loss and severe neuropathy in bilateral lower and upper extremities. Denied hematochezia, hematemesis, or melena.

Past Medical History
- Coronary artery disease s/p percutaneous coronary intervention with drug eluting stent to the ostial LAD
- Aortic aneurysm s/p graft repair in 2019
- Severe aortic insufficiency s/p bioprosthetic aortic valve replacement in 2019 with subsequent aortic root repair

Physical Exam
- Afebrile and hemodynamically stable
- Systolic murmur auscultated
- Otherwise benign exam

Pertinent Lab Findings
- Decreased Iron (26 ug/dL)
- Decreased iron binding capacity (218 ug/dL)
- Ferritin markedly elevated 1,792 ng/mL
- Soluble transferrin receptor level 1.43 mg/L

CT Chest/ Abdomen/ Pelvis Findings
- Splenomegaly and multiple splenic infarcts. Significant lymphadenopathy.

Geisinger

Clinical Course

Day 1
- Presented with Hgb 7.6 on admission

Day 2
- Concern for GI source: patient underwent EGD/ Colonoscopy. No acute source of bleed. Internal and external hemorrhoids.

Day 3
- TTE showing increased velocities across the aortic prosthesis were noted, in addition to a prolonged acceleration time suggestive of obstruction
- Possible cardioembolic phenomenon
- Differential broadened to include malignancy

Day 6
- TEE showing severe stenosis of the bioprosthetic aortic valve with either layering thrombus or vegetation on leaflets
- Shared decision made to start heparin for thrombotic emboli
- Blood and Fungal cultures drawn
- ESR CRP markedly elevated

Day 7
- Febrile to 38.3, BCx cultures grew *Streptococcus Viridans*
- Ceftriaxone started, systemic anticoagulation discontinued
- Additional history obtained notable for extensive dental work almost six months prior, coinciding with the start of nonspecific B symptoms
- Chart review showed patient had not received antibiotic prophylaxis prior to procedures
- Final diagnosis- **Subacute Bacterial Endocarditis**

Day 9
- Patient opted for surgical management
- Dental evaluation for extraction of three decayed teeth

Day 19
- Successfully underwent redo sternotomy, aortic root replacement, as well as replacement of aortic bioprosthetic valve
- Discharged on six weeks of IV ceftriaxone

Day 22
- Post surgical TEE showed bio prosthesis without evidence of obstruction or regurgitation

Discussion

- Mortality rates associated with infective endocarditis remain high, some studies showing six-month mortality rates of almost 25%. [2]
- Presenting symptoms in subacute IE are variable, including chest pain, abdominal pain, fever, chills, paresthesias, weight loss, and night sweats. [3]
- In a patient who presents with acute anemia, a GI source is most often suspected. It is important to note that this patient reported no recent hematochezia, melena, or hematemesis. Though a negative EGD and colonoscopy does not rule out a slow gastrointestinal bleed (possible AVM), the presence of ACD broadened the differential.
- Infection, autoimmune diseases, malignancy, as well as chronic kidney disease can present with anemic of chronic inflammation.[4]
- Malignancy was excluded, though it is important to note that an infectious work up was not completed until 6 days into the patient's stay, when there was higher suspicion for infective endocarditis based off of TEE findings.
- In a patient who otherwise presented afebrile, with no leukocytosis, anchoring bias likely resulted causing the team to search for GI sources of anemia rather than infectious sources.[5]

Conclusions

- Value in maintaining a very broad differential when presented with a patient reporting nonspecific symptoms
- Cognitive bias commonly occurs in clinical medicine
- In a patient with nonspecific symptoms, a high index of suspicion for infectious sources is required for prompt diagnosis and treatment of subacute bacterial endocarditis.

References

1. Baddour LM, Wilson WR, Bayer AS, et al. Infective Endocarditis. Circulation AHA [Internet]. 2005 June 14 [cited July 17 2023]; 111(23): e394–e434. Available from: https://www.ahajournals.org/doi/full/10.1161/CIRCULATIONAHA.105.165564
2. Scheggi, V., Merilli, I., Marcucci, R. et al. Predictors of mortality and adverse events in patients with infective endocarditis: a retrospective real world study in a surgical centre. BMC Cardiovasc Disorders [Internet].2021 January 12 [cited July 17 2023]; 21 (28) Available from: https://doi.org/10.1186/s12872-021-01853-6
3. Romanello, E. Subacute Bacterial Endocarditis: Autoimmune Registry [Internet]. [cited July 18 2023]. Available from: https://www.autoimmuneregistry.org/subacute-bacterial-endocarditis
4. Guenter Weiss, Tomas Ganz, Lawrence T. Goodnough. Anemia of inflammation. Blood [Internet]. 2019 [cited July 17 2023]; 133 (1): 40–50. Available from: https://doi.org/10.1182/blood-2018-06-856500
5. Hammond MEH, Stehlik J, Drakos SG, et al. Bias in Medicine: Lessons Learned and Mitigation Strategies. JACC Basic to Translational Science [Internet]. 2021 Jan 25 [cited July 19 2023];6(1):78-85. Available from: https://pubmed.ncbi.nlm.nih.gov/33532668/