A Rare Case of Anaplasmosis-Induced Cardiomyopathy

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Introduction

• Anaplasmosis or human granulocytic anaplasmosis (HGA), is a tick-borne disease caused by Anaplasma phagocytophilum1
• Common symptoms are malaise, fever, headache, leukopenia, thrombocytopenia, transaminitis, and elevated inflammatory markers

Case Presentation

• 77-year-old female with past medical history of hypertension, hypothyroidism, diabetes mellitus, and anxiety presented with four days of diffuse abdominal pain, nausea, decreased appetite, and episodes of confusion
• Vitals: HR 108 bpm, BP 90/60, SpO2: 91%
• Physical examination: disoriented, somnolent
• Labs: platelets 26000 cells/mm3, Se. Cr 4 mg/dL, Se. Na 125 meq/L, ALP >350 IU/L, lactate 3 mmol/L, troponin 90 ng/ml
• CT head and abdomen was unremarkable
• Peripheral smear showed intracytoplasmic inclusions in neutrophils suspicious for anaplasmosis or ehrlichiosis. Antibiotics de-escalated to doxycycline, azithromycin, and atovaquone (Figure 1).
• PCR test confirmed anaplasmosis, and antibiotics were de-escalated to doxycycline

• Her mentation improved and she denied exposure to animal/tick bites or rashes
• Elevated troponin was initially attributed to infection, continued to trend up to >1700 ng/ml, pro-BNP >7000 pg/mL. Echocardiogram: showed left ventricular ejection fraction of 20% to 24% (compared to 60% 10 months back), and severe diffuse hypokinetic and akinetic left ventricular apex.
• Differential diagnoses were cardiomyopathy secondary to infection versus multivessel coronary artery disease. She was started on aspirin, statin, and carvedilol.
• After completion of antibiotic course, her symptoms resolved and she was discharged
• Outpatient cardiac catheterization revealed mild coronary artery disease, confirming cardiac stress caused by anaplasmosis

Discussion

• HGA is challenging to diagnose due to a wide spectrum of clinical presentations and nonspecific symptoms
• Delayed treatment and immunocompromised states can lead to life threatening complications
• PCR is the gold standard for diagnosis. However, it is not widely accessible.
• Peripheral smear, despite low sensitivity, is easily available and not time consuming
• Case fatality rate of HGA is < 1%
• Delay in treatment can lead to fatal outcomes

Conclusion

• HGA presents with vague symptoms and can present with fatal complications. While PCR is diagnostic, peripheral smear can be used as an initial investigation.
• Early recognition of HGA and its complications is important for timely initiation of treatment, as it is associated with better outcomes
• In patients with HGA, it is essential to consider cardiac involvement as a differential diagnosis and treat it promptly

References