Introduction

Graft-versus-host disease (GVHD) is a multisystem disorder that is a well-recognized complication of hematopoietic cell transplant (HCT). Myasthenia Gravis (MG) is as an uncommon manifestation of GVHD, with less than one percent of patients with chronic GVHD receiving a diagnosis.

One should have a thorough diagnostic approach for patients presenting with weakness in GVHD due to the multisystem nature of the disease and the large set of potential etiologies from a patient’s medical history and immunosuppressed status.

Case Presentation

A 63 year-old man with a history of Acute Myeloid Leukemia (AML) who is two years status-post peripheral blood HCT, with a course complicated by acute & chronic GVHD, was admitted for workup of failure to thrive with one year of unintentional weight loss, weakness, dysphagia, and increased dyspnea on exertion.

Past Medical History

- AML
- Diagnosed 2016
- Peripheral blood HCT from unrelated donor in 2017

Post-transplant course complicated by
- Acute and chronic GVHD

Vitals

Temp - 37 C / BP 147/74 / HR 104 / RR 18 / 94% on 21. NC

Physical Exam

Speech: Moderate dysarthria, nasal speech, more pronounced at end of exam
Cranial Nerves: Reported diplopia with lateral gaze bilaterally.
Mild ptosis that worsens with sustained upward gaze
Motor: Deltoid strength 5/-5 bilaterally after 20 arm flaps. No contractions or fasciculations.

Labs

VBG: 7.33/84

140 109 11 4.0 40 0.51 92

Imaging

MRI Brain W/O - No acute hemorrhage, mass, or infarction. No abnormal enhancement

References/Acknowledgements


Framing the Case

63 YOM with AML s/p HCT c/b acute and chronic GVHD, admitted for progressive, unintentional weight loss and dysphagia, found to have new oxygen requirement and fatigable bulbar weakness.

Overview of Myasthenia Gravis

Diagram of synaptic cleft with clinically important proteins identified

Positive Ice-Pack Test – Mechanism thought to be via inhibition of acetylcholinesterase activity at a reduced muscle temperature

Leading Differentials

Neuromuscular Junction Disease
- Myasthenia Gravis
- Lambert-Eaton

Motor Neuron Disease
- However, no upper-motor signs noted on exam

Guillain Barre Syndrome - Brachial-Cervical Variant
- Would expect more acute course

Chronic Inflammatory Demyelinating Polynuropathy (CIDP)
- Would expect concurrent distal involvement

Hospital Course

Further Evaluation

Monitor respiratory status
- NIF/FVC – Remained appropriate
- Anti-acetylcholine: receptor antibody negative
- CT chest negative for mediastinal mass
- EMG/NCS with severe post-synaptic defect of NMJ transmission
- MG/LES panel positive for anti-MUSK (Muscle-Specific Kinase)

Outcomes

- NIF/FVC – Remained appropriate
- Anti-acetylcholine: receptor antibody negative

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Teaching Points

- Myasthenia Gravis represents less than 1% of all complications of GVHD. Symptoms typically develop between 2-5 years after transplantation.
- Chronic inflammatory nature of GVHD predisposes patients to autoimmune disease.
- MuSK antibodies are found in 40-50% of the AChR-negative generalized MG group.
- Electromyography studies are documented as the most sensitive modality for generalized MG, with sensitivities consistently >90%.