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# Case Report: The Challenge of Balancing Stewardship and Advocacy

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# Case Report: The Challenge of Balancing Stewardship and Advocacy

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## *Abstract:*

We report a case of a 62-year-old female who presented with chief complaint of generalized weakness and was ultimately diagnosed with hypereosinophilia. This chief complaint is challenging for many EM physicians, and the differential diagnosis of generalized weakness is vast. Etiologies of generalized weakness in the adult population ranges from infection, dehydration, cardiovascular disease, to neurologic compromise. It is crucial for the Emergency Physician to put emphasis on proper history collection, detailed physical exam, and appropriate ancillary testing. In this case report we showcase the significance of the optimal evaluation of life-threatening disorders that presents as generalized weakness, as well as the importance of advocacy for patients.

## *Case Presentation:*

A 61-year-old female presented to the emergency department (ED) with a chief complaint of generalized weakness. She had a past medical history of hypertension, hyperlipidemia, and GERD. Patient had been having generalized weakness, decrease muscle strength, and low back pain on going for two weeks. Denied any trauma, cauda equina, saddle anesthesia, UTI symptoms. Prior to this visit to the ED, she was seen in the ED on two separate occasions within two weeks for chest pain and facial pain. The workups were unremarkable , and the patient was discharged on those occasions. A few days prior she saw her rheumatologist who informed her she was Anti-Nuclear Antibody positive.

The patient's vital signs were as follows: heart rate 68 beats per minute, respiratory rate 12 breaths per minute, blood pressure 125/65 mmHg and a temperature 36.4 degrees C. The physical exam proximal shoulder muscle weakness 4/5, and bilateral lower extremity weakness 4/5 with no sensory deficits. Her white blood cell count was 14,200 per microliter with 55% eosinophils, and absolute eosinophils 7.80. Electrolytes and were within normal limits. C-reactive protein was 0.70. A computerized tomography (CT) scan of the abdomen and pelvis with intravenous (IV) contrast showed mild cystitis, cholelithiasis, and lumbar facet arthropathy . CT soft tissue neck with IV contrast was unremarkable and so was the chest x-ray.

Given that the patient's work up did not show any overwhelming findings, the ED physician had a challenging task in convincing the hospital service to admit the patient. The ED physician however, was convinced that the only way to expedite the patient's work up was to place the patient in the hospital so that continued monitoring and testing can be done at the very least to exclude occult illness. Because of the ED physicians advocacy, the patient was subsequently admitted and a multi-specialty evaluation followed. After an in-depth evaluation she was started on prednisone 40 mg and was diagnosed with Hypereosinophilia. Her symptoms remarkably improved after the initiation of the steroid treatment.

## *Discussion:*

***Generalized weakness in the Emergency Department:***

Weakness is a difficult complaint to efficiently handle in the Emergency Department (ED). An emergency physician must properly identify and delineate fatigue, asthenia, malaise from true neuromuscular weakness. It is crucial for a physician to maintain a broad differential diagnosis when evaluating patients with this complaint. Disorders to name a few such as Guillain-Barre, Myasthenia gravis, Tick paralysis, Botulism, and Transverse myelitis can be life threatening and warrants attention and consideration (1). Studies have shown infection is the most common cause of generalized weakness with incidence of neuromuscular weakness being observed in 50-100% of patients with underlying sepsis and multi-organ failure (19). Additionally endocrine, metabolic and nutritional derangements were also implicated. Neoplasms were identified in a small subset (2).

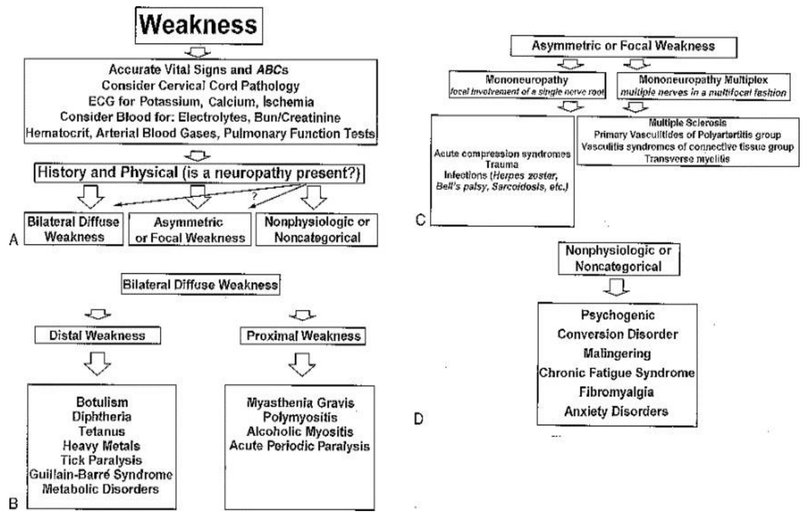


**Figure 1:** From "Approach to Generalized weakness and Peripheral Neuromuscular Disease" .

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| M | Medications: Steroid, Neuromuscular Blockers (Pancuronium, Vecuronium), Zidovudine, Amiodarone |
| U | Undiagnosed neuromuscular disorders: Myasthenia, LEMS, inflammatory myopathies, mitochondrial myopathy, Acid Maltase deficiency |
| S | Spinal Cord Disease (Ischemia, Compression, Trauma, Vasculitis, Demyelination |
| C | Critical illness myopathy, polyneuropathy |
| L | Loss of muscle mass (Cachectic myopathy, Rhabdomyolysis) |
| E | Electrolyte disorders (Hypokalemia, Hypophosphatemia, Hypermagnesemia) |
| S | Systemic illness (Porphyria, AIDS, Vasculitis, Paraneoplastic, toxic) |

**Figure 2:** Mnemonic used for differential diagnosis of generalized weakness from "ICU acquired weakness in children: critical illness polyneuropathy and myopathy".

## *References:*

***Available on request***

## *Discussion continued:*

***Identifying life threatening conditions:***

It is crucial in the ED to identify life threatening pathologies that may be masked by generalized weakness or non-specific complaints. Conditions such as Guillain-Barre syndrome, Myasthenia gravis, Botulism, Transverse myelitis, organophosphate poisoning, Tick paralysis, and Amyotrophic lateral sclerosis are all forms of neuromuscular disease that require systematic evaluation (7).

***Laboratory studies:***

Electrolyte abnormalities such as hypokalemia due to anorexia, vomiting, or diarrhea may be seen on a basic metabolic panel. In addition, elevated Creatine Kinase can be elevated in disorders such as polymyositis. Blood cultures should be obtained in patients who have complicated disease.

***Imaging:***

The main step in evaluation of generalized weakness is identifying peripheral nerve lesions from CNS pathology. Peripheral neuropathies/myopathies undergo a gradual progressive deterioration, compared to central lesions that present more acutely. In the acute settings, CT imaging of the brain may be beneficial (7).

***Management:***

Management of generalized weakness varies based on a patients history of present illness, vital signs, clinical impressions, and physical examination. Due to a vast differential diagnosis, it is crucial for the ED physician to maintain a proper systematic approach to evaluation of these patients as seen in Figure 1. An efficient primary survey, followed by secondary survey with proper initiations of airway, breathing, and circulation may be implemented if unstable.

***Medical Ethics:***

Generalized weakness is an umbrella term commonly seen in the patients in the ED. At times, these patients warrant admission despite having an unremarkable initial work up. Oftentimes, it is the advocacy of the ED physician that helps facilitate these admissions. While stewardship focuses on appropriate care and avoidance of waste, advocacy for the patients should ultimately focus on patient safety (8).

## *Conclusions:*

The importance of this case presentation is two-fold: 1. To raise awareness of the broad differential diagnosis of generalized weakness, and the challenges of excluding serious underlying pathologies that may be associated with this chief complaint, and 2. Emphasize the importance of patient stewardship through advocacy. Diseases present in various stages in the ED and at times it is difficult to put together a cohesive picture of what is transpiring. However, as illustrated in this case, the patient benefited from her admission through identification of hypereosinophilia as the source of her generalized weakness. Her diagnosis lead to the appropriate treatment and timely resolution of her symptoms. Someone once said that all advocacy is, at its core, an exercise in empathy.