Gut Check

### Prompt:  
  
"I am assessing a 24-year-old male minor league hockey player who collapsed on the ice after coughing up blood during a game. He initially displayed no significant symptoms prior to the incident, but was experiencing increased fatigue and intermittent fevers over the past week. Emergency assessment ruled out trauma, particularly concerning a punctured lung or rib fracture.  
  
Upon examination, he presented with an enlarged spleen noted on CT imaging. The initial differential diagnoses considered included sarcoidosis and psittacosis, but these were ultimately ruled out with further tests. Concurrently, his physical examination revealed gynecomastia, and he confessed to increased emotional sensitivity.   
  
Tests showed an abnormal white blood cell count and a positive rapid test for infectious mononucleosis. However, the patient has now developed worsening weakness in his arms and difficulty with coordination, raising further concerns.  
  
Given the patient's symptoms and imaging findings, what differential diagnoses should be considered, and what additional tests would you recommend to pinpoint the exact cause of his neurological decline?"  
  
### Expected LLM Response:  
  
"In this case, the patient's presentation is quite complex, with elements suggestive of both an infectious process and potential autoimmune involvement. Based on the symptoms of cough, hemoptysis, enlarged spleen, gynecomastia, emotional changes, and now worsening neurological symptoms, here are the differential diagnoses and recommended tests:  
  
Differential Diagnoses:  
  
1. \*\*Miller Fisher Syndrome\*\*: This is a variant of Guillain-Barré Syndrome often associated with the Epstein-Barr virus (EBV) -- the same virus that causes infectious mononucleosis. The presentation of ataxia, ophthalmoplegia, and areflexia typically follows a preceding viral infection. The recent diagnosis of mononucleosis in this patient may correlate with the onset of Miller Fisher syndrome.  
  
2. \*\*Guillain-Barré Syndrome (GBS)\*\*: Similar to Miller Fisher, GBS could occur post-infection, resulting in rapidly progressive muscle weakness and areflexia.  
  
3. \*\*Cytomegalovirus (CMV) Infection\*\*: This could also be a consideration due to the overlapping presentation with EBV and the patient's immunological profile.  
  
4. \*\*Lymphoproliferative Disorders\*\*: Given the gynecomastia and splenomegaly, consider conditions like lymphomas or leukemias that may present with these clinical signs as well as neurological complications.  
  
Recommended Diagnostic Tests:  
  
1. \*\*Lumbar Puncture\*\*: To assess cerebrospinal fluid (CSF) for oligoclonal bands, proteins, and possible evidence of viral infection would be prudent in confirming conditions like GBS or Miller Fisher syndrome.  
  
2. \*\*MRI of the Brain and Spine\*\*: To look for any lesions or inflammation that may correspond with neurological symptoms.  
  
3. \*\*Antibody Tests\*\*: Verify the presence of anti-GQ1b antibodies (specific for Miller Fisher syndrome) and further viral panels for both EBV and CMV.  
  
4. \*\*Blood Tests\*\*: Complete blood count to monitor white blood cells and evaluate for any hematologic issues, and hormonal panels to assess the cause of gynecomastia.  
  
In summary, considering the association of EBV and the current clinical state, Miller Fisher syndrome emerges as a high-priority diagnosis while further workup is warranted to fully understand the patient's neurological decline."  
  
### DISEASE:  
Miller Fisher Syndrome