

Hiding in Plain Sight: Protein Electrophoresis Profile Inconsistent with Patient's Diagnosis

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CASE DESCRIPTION

An 85-year-old male was admitted to the intensive care unit for a lower gastrointestinal bleed. Colonoscopy revealed diverticulosis and he received a total of 4 units of packed red blood cells. Follow-up laboratory studies took place over 7 months. The patient continued to lose weight and presented with a 20-pound (9 kg) weight loss 1 month later. Initial laboratory findings revealed pancytopenia and immunofixation electrophoresis (IFE) suggested a monoclonal IgM lambda gammopathy. However, capillary zone electrophoresis (CZE) showed a large hump in the gamma region, which could not be definitely characterized as an M-spike or polyclonal hypergammaglobulinemia. Subsequent bone marrow evaluation showed hypercellular marrow with 90% effacement by small B lymphocytes that were cluster of differentiation (CD) 45+, CD19-/dim+, CD20+, CD5-, CD10-, CD23 dim+, CD38-, and surface immunoglobulin lambda positive. The bone marrow also tested positive for mutations in myeloid differentiation primary response protein 88 (*MYD88*; L265P) and chemokine receptor 4 (*CXCR4*). Altogether, these findings confirmed the diagnosis of lymphoplasmacytic lymphoma/Waldenström acroglobulinemia (WM). However, because the CZE remained inconclusive, the primary laboratory sent the specimen to our reference laboratory for additional investigation. No abnormality suggesting monoclonal gammopathy was reported on our laboratory's CZE profile obtained using the Sebia Capillarys 3 Tera system, which prompted the primary laboratory's inquiry about the discrepancy between the patient's diagnosis and CZE results.

QUESTIONS TO CONSIDER	
1.	How is WM diagnosed?
2.	What criteria should be considered when evaluating a serum protein electrophoresis (SPEP) profile?
3.	What methods are commonly used to evaluate monoclonal protein?
4.	What is the difference between multiple myeloma (MM), WM, and monoclonal gammopathy of undetermined significance (MGUS)?

Final Publication and Comments

The final published version with discussion and comments from the experts will appear in the February 2025 issue of *Clinical Chemistry*. To view the case and comments online, go to <https://academic.oup.com/clinchem/issue/71/2> and follow the link to the Clinical Case Study and Commentaries.

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