M-protein-negative Myeloma Mimicking Lumbar Disc Herniation

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Abstract

A 60-year-old man was referred to us with high levels of aspartate aminotransferase and lactate dehydrogenase (LDH). He did not complain of any symptoms; however, he had been diagnosed with lumbar disc herniation, even though his back pain improved only to half of its previous level with pregabalin. Thus, we asked about the red flag of back pain and confirmed that he had involuntary body weight loss, which led us to diagnose truly non-secretory multiple myeloma, a variant of multiple myeloma that is associated with M-protein negativity and a normal serum free light chain level.

Key words: truly non-secretory multiple myeloma, M-protein, red flags

(Intern Med 56: 1725-1727, 2017)

DOI: 10.2169/internalmedicine.56.8158)

Introduction

In patients with non-secretory multiple myeloma (NSMM), which accounts for approximately three percent of all multiple myeloma (MM) cases (1), the results of protein electrophoresis and the immunofixation of serum and urine are normal. Furthermore, the 2-4% of NSMM patients who also have normal serum free light chain (FLC) ratios are diagnosed as having truly NSMM (1).

Truly NSMM, which is a variant of multiple myeloma, is difficult to diagnose because it has no specific measurable biomarkers: the patients are M-protein-negative and show normal serum free light chain levels. We herein report the case of a patient who showed a symptom consistent with lumbar disc herniation, but in whom red flags helped in the detection of truly NSMM.

Case Report

A 60-year-old man visited an orthopedist in July 2015 after experiencing low back pain and numbness of the right leg at the L4 dermatome for two weeks. Based on the symptoms, the patient was diagnosed with lumbar disc herniation on the basis of the magnetic resonance imaging (MRI) findings. The patient’s pain level was reduced by 50% after pregabalin treatment. Screening tests revealed that he had increased levels of aspartate aminotransferase (AST) and lactate dehydrogenase (LDH); he was therefore referred to our department after seven weeks.

His medical history was unremarkable. He took no regular medications other than pregabalin and mecobalamin. He had experienced an unintended weight loss of 4% (from 70 kg to 67.5 kg) in the two previous months. The results of a physical examination were normal. The blood examination findings were as follows: white blood cell count, 5,400/μL; hemoglobin level, 10.3 g/dL; mean corpuscular volume, 100.3 fL; reticulocyte count, 78,000/μL; and platelet count, 120,000/μL. The abnormal laboratory findings on the initial tests included total protein (6.1 g/dL), AST (122 U/L) and LDH (977 U/L) levels, with the LDH isoenzymes composed of LDH-1, 13.1% (reference range, 20.0-31.0%); LDH-2, 35.2% (reference range, 28.8-37.0%); LDH-3, 33.2% (reference range, 21.5-27.6%); LDH-4, 14.7% (reference range, 6.3-12.4%); and LDH-5, 3.8% (reference range, 5.4-13.2%).

The patient’s albumin, alanine aminotransferase, bilirubin, creatine kinase, and C-reactive protein levels were within the reference ranges. Neither kidney dysfunction nor hypercalcemia was detected. M-protein was not detected in the diagnostic tests, electrophoresis or immunofixation of the pa-

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Received for publication August 22, 2016; Accepted for publication November 4, 2016

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tient’s serum and urine protein. A free light chain (FLC) assay also revealed a normal κ/λ ratio. However, the β; microglobulin level was high (6.5 mg/L; reference range, 0.8-1.8 mg/L), and the immunoglobulin (Ig) levels were low for IgG (622 mg/dL; reference range, 870-1,700 mg/dL), IgA (78 mg/dL; reference range, 110-410 mg/dL), and IgM (13 mg/dL; reference range, 35-220 mg/dL), while the IgD level was normal (<0.6 mg/dL). Lumbar MRI, which was performed by his previous doctor, showed broad reduced T1-weighted signals and hyperintense short tau inversion recovery (STIR) signals of the lumbar bones in comparison to the signals of the adjacent disk and paravertebral muscles, and a tumor involving the L4 vertebrae (arrow).

Discussion

According to the consensus statement from the Interna-
ers, tends to be diagnosed at an advanced stage (6). However, the red flags and hypogammaglobulinemia with some CRAB events might indicate this rare type of MM.

The authors state that they have no Conflict of Interest (COI).

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