A Healthy Young Man Presenting with Multiple Rib Fractures

Lindsey Harle,1 Clayton Chan,2 Nadhipuram V. Bhagavan,3 Carlos N. Rios,1,4 Cheryl E. Sugiyama,4 Miki Loscalzo,4 Jane Uyehara-Lock,1,4 and Stacey A.A. Honda1,4*

1 Department of Pathology and 3 Department of Anatomy, Biochemistry and Physiology, John A. Burns School of Medicine, University of Hawaii, Honolulu, HI; 2 Department of Oncology and 4 Department of Pathology, Kaiser Foundation Hospital, Honolulu, HI.

*Address correspondence to this author at: Pathology/Regional Laboratory, Kaiser Foundation Hospital, 3288 Moanalua Road, Honolulu, HI 96819. E-mail stacey.honda@kp.org.

A 32-year-old, otherwise healthy man presented initially with right rib and sternal pain after lifting a heavy object. The patient also reported several rib fractures 1 year previously associated with coughing. On examination, the patient had bilateral rib tenderness. Chest x-ray revealed multiple healing fractures of the sixth, seventh, and eighth ribs. A bone scan demonstrated increased uptake in the sternum and bilaterally in the ribs.

A complete blood count was normal with the exception of a platelet count of 61 000/uL (reference interval, 130 000–440 000/uL). Alkaline phosphatase, creatinine, and calcium were within reference intervals. Total protein and albumin were 67 g/L (reference interval, 61–79 g/L) and 44 g/L (reference interval, 35–48 g/L), respectively. Ig concentrations were decreased: IgG 6.07 g/L (reference interval, 7.51–15.60 g/L), IgA 0.31 g/L (reference interval, 0.69 –2.09 g/L), and IgM 0.10 g/L (reference interval, 0.48 –2.74 g/L). We performed serum protein electrophoresis (SPEP)5 and immunofixation using the Sebia Hydrasys®. SPEP showed no monoclonal band in the γ region but an unexplained band in the β region with a reduced γ-globulin concentration of 3.9 g/L (reference interval, 6–14 g/L). Serum immunofixation electrophoresis showed a prominent λ monoclonal band in the β region and hypogammaglobulinemia. Immunofixation studies for IgG, IgA, and IgM were negative for the presence of monoclonal bands. β2-Microglobulin was increased at 3.51 mg/L (reference interval, <1.85 mg/L). Twenty-four-hour urine collection was significant for a total protein of 0.54 g/24 h (reference interval, <0.15 g/24 h); urine protein electrophoresis (UPEP) and immunofixation revealed 2 monoclonal λ light chain bands.

Questions to Consider

- List the significant and atypical findings in this case.
- Given the patient’s SPEP and immunofixation results, what additional testing should be performed by the laboratory?
- What is the differential diagnosis of a monoclonal band that shows staining for light chains, but not for IgG, IgA or IgM?
Clinical Case Study

Final Publication and Comments
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