Multiple Cerebrospinal Fluid Bands with Accompanying Serum Bands

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CASE DESCRIPTION
A 61-year-old man was being assessed for multiple sclerosis. His paired cerebrospinal fluid (CSF) and serum samples were sent to the clinical biochemistry laboratory for oligoclonal band analysis by CSF isoelectric focusing and IgG immunofixation (Fig. 1). Creutzfeldt–Jakob disease immunoassay panel with CSF 14-3-3, tau, and S100B proteins was negative.

Fig. 1. Isoelectric focusing and IgG immunofixation of the patient’s samples. Lane 1, serum sample; lane 1’, corresponding CSF sample.

QUESTIONS
1. What is the interpretation for this sample?
2. What is the differential diagnosis for multiple bands in CSF with some accompanying bands in serum?

The answers are on the next page.
Multiple IgG bands present in CSF but not in serum are diagnostic of oligoclonal bands, consistent with multiple sclerosis. Prominent serum bands triggered serum protein electrophoresis and immunofixation, which revealed coexisting IgG-kappa monoclonal protein (2.4 g/L).

This pattern, multiple CSF bands with some accompanying serum bands, should be differentiated from the pattern of multiple similar CSF and serum bands present in systemic inflammation (1) and from monoclonal gammopathy, where 1 or 2 identical bands are found in CSF and serum (2). In addition, the serum bands in systemic inflammation tend to be small and evenly distributed (3).

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References