Monoclonal Light Chains Can Remain Unnoticed in Protein Electrophoresis

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Dear Editor

It is of great importance to establish an early diagnosis in multiple myeloma (MM), Waldenström's macroglobulinemia and other proliferative disorders of the plasma cells such as AL-amyloidosis, light chain disease. The level of monoclonal immunoglobulins, which increases in these disorders, are accumulated in several organs mainly in the kidneys and this accumulation result in various pathological conditions [1]. Early diagnosis and treatment can be lifesaving in these patients. Monoclonal immunoglobulins and their free light chains are important diagnostic markers in the diagnosis of monoclonal gammopathies. Although there is an ongoing controversy as to whether the detection of free kappa/lambda

proportion using an immunoassay method recently developed to screen for and early diagnose monoclonal gammopathies is superior to electrophoretic methods, many laboratories are still using serum protein electrophoresis (SPE) and immunofixation electrophoresis (IFE) for diagnostic and screening purposes [2, 3]. The testing algorithm of the laboratories, which utilize electrophoretic methods, generally involve the screening of monoclonal protein (M-protein) peak in SPE followed by subtyping of monoclonal protein using IFE in patients who are found positive for M-protein peak. On the other hand, SPE is limited due to its inability to detect monoclonal proteins in patients with light chain MM, free light chain deposition disease, and AL-amyloidosis. The reason for this is that these free light chains are either too low to be detected in SPE or migrate to one of such bands as alpha 1, alpha-2, or beta in SPE due to their low molecular weights. Serum IFE has a tenfold higher sensitivity compared to SPE [2–5]. However, the IFE method has some disadvantages, such as being semi-automate and time-consuming and most commercial kits screen for four diseases (in other words, four patients are tested at once) and the test requires specialized personnel for analysis and interpretation. At our laboratory, albeit not often, we encounter pathological bands using IFE that could not be detected with SPE (Fig. 1). Although this situation is known, there is no publication demonstrating of that. As mentioned above, it is important to diagnose these disorders early. The bands that are not detected with SPE can cause delays in diagnosis. We suggest clinicians to directly order serum and urine IFE without consuming time with SPE, if strong clinical findings exist such as advanced age, anemia, and kidney disorder.

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Fig. 1 The SPE of this patient was quite non-specific for a particular disease (A). Clinicians generally focus on gamma region while evaluating a SPE, which in this case looked very much innocent. Only

a high index of suspicion would lead the clinician to search for the vague peak in alpha 2 region, that was easily confirmed to be a monoclonal lambda band in subsequent serum IFE of the same patient (B)

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