CASE DESCRIPTION

A 55-year-old man was admitted for impaired health status and lower back pains. Analysis of serum proteins by capillary zone electrophoresis (CZE) was performed on a Capillarys Protein(e) 6. The $\beta_1$-globulin fraction showed a peak suggestive of the presence of a monoclonal component (Fig. 1A, dashed arrow). However, subsequent serum protein immunotyping (Capillarys Immunotyping) failed to demonstrate a monoclonal protein.

Fig. 1. CZE electropherograms of the patient’s serum (A) and a reference sample (B).

QUESTIONS

1. What type of detection does CZE use?
2. What can cause interferences with this method?

The answers are on the next page.
ANSWERS

CZE uses ultraviolet detection at 200 nm for direct protein quantification. One of its drawbacks is the potential interference by exogenous nonprotein substances, such as radiopaque agents and antibiotics, which also absorb at this wavelength (1). Investigations revealed that the patient had received, 1 h before blood sample collection, iomeprol (Iomeron®), a radiopaque agent known to yield an abnormal peak in the β1-globulin fraction. As recommended by Vermeersch et al., a second CZE was performed on a new sample 2 days later (2). No residual interference was observed, because iomeprol has an elimination half-life of 89–129 min.

Author Contributions: All authors confirmed they have contributed to the intellectual content of this paper and have met the following 3 requirements: (a) significant contributions to the conception and design, acquisition of data, or analysis and interpretation of data; (b) drafting or revising the article for intellectual content; and (c) final approval of the published article.

Authors’ Disclosures or Potential Conflicts of Interest: No authors declared any potential conflicts of interest.

References