A 60-year-old woman with a 1-year history of lower back pain presented with recent-onset altered sensorium. Clinical examination and neuroimaging did not show any focal neurologic lesions. She had severe anemia (hemoglobin 68 g/L) and mild leukocytosis with 8% circulating multinucleate cells in the peripheral blood. The bone marrow aspirate showed a large number of bizarre, atypical cells with binucleation, multinucleation, and abnormal nuclear lobation (panels A-C; original magnification ×100, May-Grünwald-Giemsa stain). The cytoplasm was basophilic to amphophilic and contained numerous vacuoles in some cells, resembling metastatic, poorly differentiated carcinoma (panel D; original magnification ×20, May-Grünwald-Giemsa stain). Plasma cells were present in adjacent fields. Flow cytometry showed moderate expression of CD38, CD56, and cytoplasmic κ in these cells. Biochemical investigations showed elevated urea and creatinine levels and reversal of the albumin:globulin ratio. Serum protein electrophoresis showed a monoclonal “M” band (3.32 g/dL) that was immunoglobulin G, κ on immunofixation. Magnetic resonance imaging of the spine showed lytic lesions involving multiple vertebrae.

Based on the clinical, biochemical, and radiologic parameters, and combined with the morphology and flow cytometry findings, a diagnosis of anaplastic plasma cell myeloma was made. This case demonstrates the unusual anaplastic morphology of plasma cell myeloma, which can lead to difficulties in morphologic diagnosis.

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"Multiple forms" of a myeloma

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