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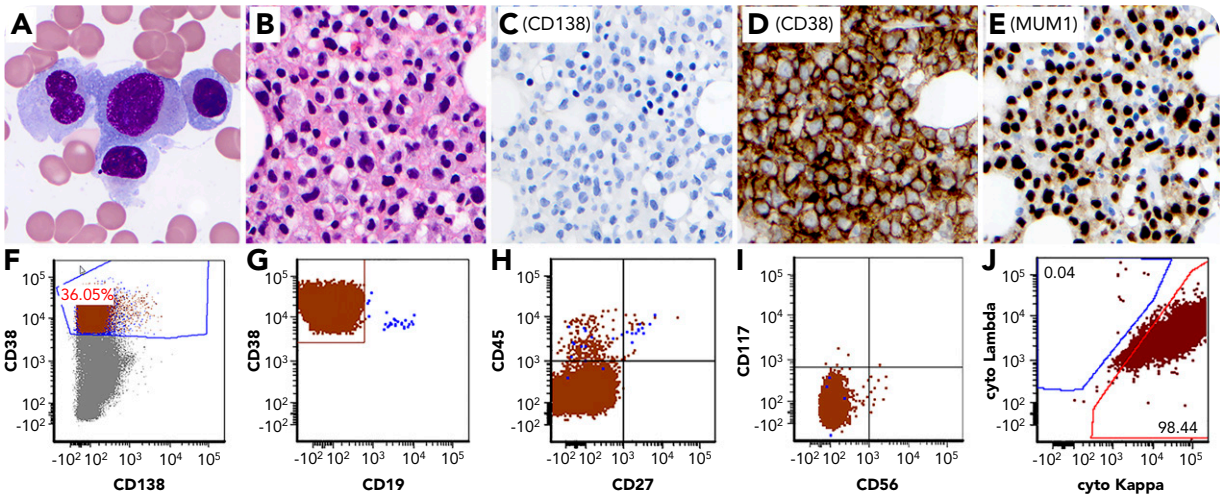
CD138⁻ plasma cell myeloma

Wen Shuai and Shaoying Li, The University of Texas MD Anderson Cancer Center



A 69-year-old man with a history of CD138⁻ plasma cell myeloma (PCM) who received chemotherapy regimens and stem cell transplant presented for bone marrow biopsy, which revealed sheets of atypical plasma cells with abundant amphophilic cytoplasm, occasional binucleation, and distinct perinuclear hof (panels A-B; original magnification ×100, Wright-Giemsa stain [A] and ×40, hematoxylin and eosin stain [B]). The neoplastic cells strongly expressed CD38 and MUM1, but were negative for CD138 by immunostains (panels C-E; original magnification ×40). Flow cytometry analysis showed that they expressed bright CD38 and monotypic cytoplasmic κ, but were negative for CD138, CD19, CD27, CD45, CD56, and CD117 (panels F-J). Fluorescence in situ hybridization was positive for deletion of *TP53* and *CCND1*, gain of *CKS1B* and *FGFR3*, and monosomy 13. Next-generation sequencing studies detected *TP53*, *KRAS*, *TET2*, *RUNX1*, *SRSF2*, and *BRAF* gene mutations. The findings were diagnostic of a refractory CD138⁻ PCM. The patient developed tumor lysis syndrome and a retroperitoneal hematoma and died of uncontrolled bleeding.

Lack of CD138 expression renders a challenge in diagnosis and minimal residual disease detection in patients with PCM, especially after treatment with anti-CD38 antibodies when CD38 expression is lost. Recognizing the presence of CD138⁻ PCM combined with morphology and other plasma cell markers, such as CD38 and MUM1, will be helpful for a correct diagnosis.

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