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Biphenotypic plasma cell myeloma

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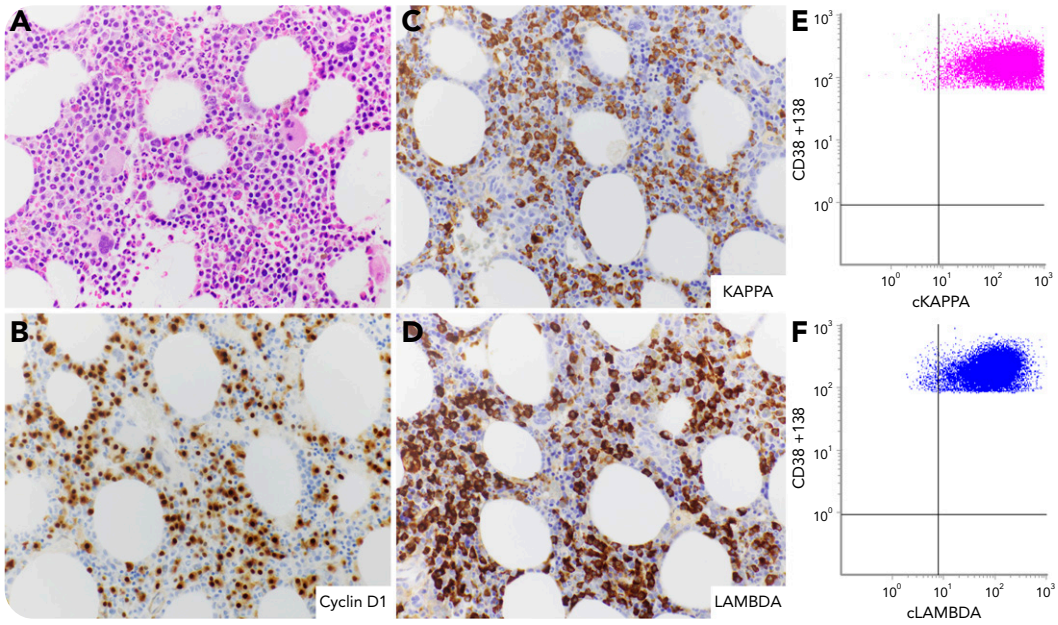

A 69-year-old man with a history of chronic renal failure was evaluated for plasma cell neoplasm and was found to have elevated serum free λ (2845 mg/L; normal, 5-26 mg/L) and κ (127 mg/L; normal, 3-19 mg/L) light chains with a free κ:λ ratio of 0.04 (normal, 0.3-1.7). He had heavy proteinuria (2904 mg/24 hours), and monoclonal free λ light chain was detected by urine immunofixation electrophoresis. No osteolytic lesions or lymphadenopathy were detected by imaging studies. The bone marrow biopsy showed increased plasma cells that made up 30% of the marrow cellularity (panel A, original magnification ×400). They were positive for CD138, cyclin D1 (panel B, original magnification ×400), kappa (κ) (panel C, original magnification ×400), and lambda (λ) (panel D, original magnification ×400) immunohistochemical stains. Aberrant plasma cells with the $CD45^{-}$, $CD38^{+}$, $CD138^{+}$, $CD56^{+/partial}$, $CD117^{+/partial}$, $CD19^{+/dim}$, $CD20^{+/partial}$ immunophenotype were detected by flow cytometry. They were expressing cytoplasmic κ and λ light chains (panels E and F; cKAPPA, cytoplasmic κ light chain; cLAMBDA, cytoplasmic λ light chain). Fluorescence in situ hybridization analysis demonstrated *CCND1-IGH* rearrangement. The diagnosis of biphenotypic multiple myeloma was rendered.

We present a very rare case of biphenotypic plasma cell myeloma in which the same neoplastic plasma cells expressed cytoplasmic κ and λ light chains with secretion of predominantly free λ light chain. The formation of biphenotypic myeloma could be explained by mutations in the light chain gene because it causes failure in allelic exclusion machinery.

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