Burkitt's lymphoma secondary to plasma cell myeloma

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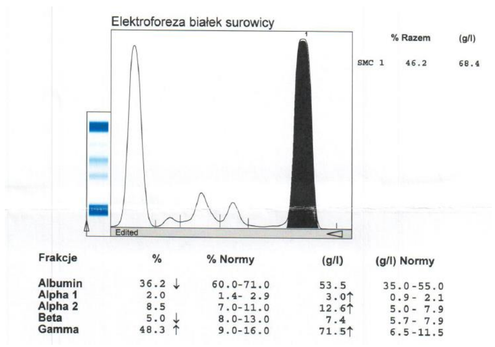
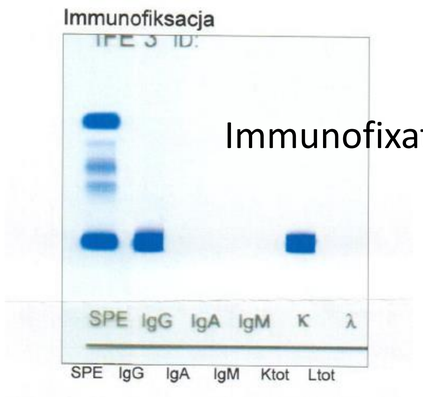
A 65 year old woman with a history of plasma cell myeloma (PCM) IgG κ (ISS stage III), diagnosed 3 years earlier, was admitted to the hospital with severe **thrombocytopenic purpura, malaise, right-sided cervical lymphadenopathy (maximal 3×4 cm), and symptoms of infection.** Laboratory tests revealed **platelets: 3.0×10^9/L, hemoglobin: 6.5 g/dl, white blood cells: 3.23×10^9/L, neutrophils: 0.8×10^9/L, ferritin: 8264 µg/L, and LDH: 8500/UI.**

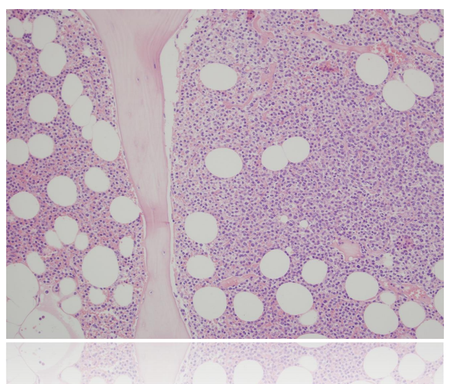


Serum protein electrophoresis

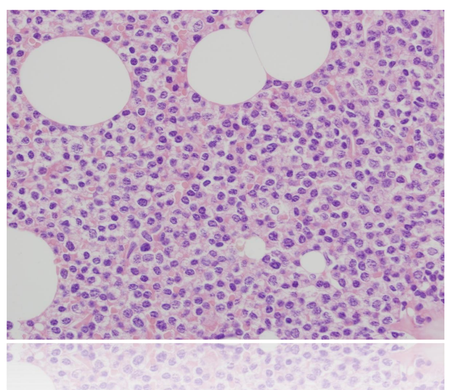


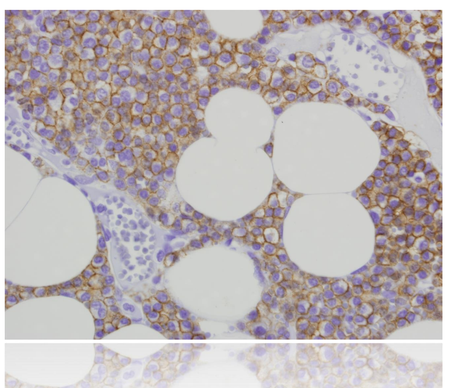
Immunofixation

Three years ealier

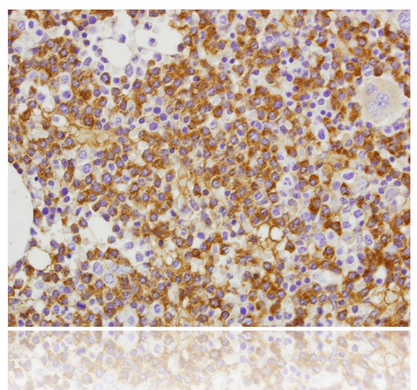


Highly cellular bone marrow infiltrated by diffuse plasma cells. H&E stain, ×60





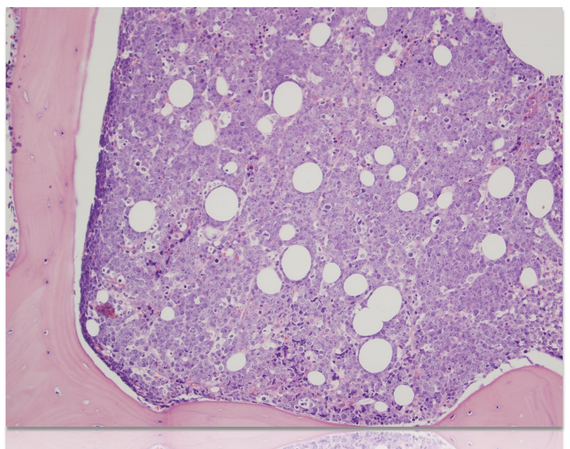
CD138 positivity in the plasma cell myeloma infiltrate.
CD138 stain, x60



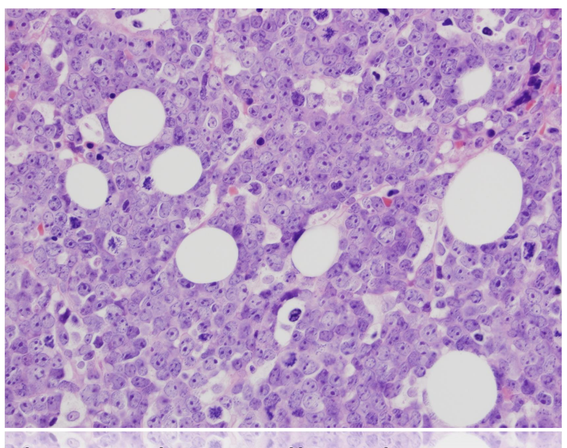
Plasma cell with kappa light chain expression.
Kappa light chain stain, x60

4 × CTD (without response) ⇨ 4 ×VTD (PR) ⇨ 2 × auto-SCT ⇨ COMPLETE REMISSION

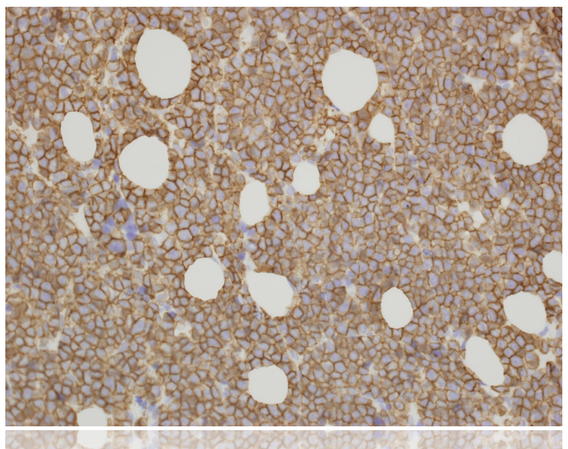
After 23-months-long symptoms-free and progression-free period…



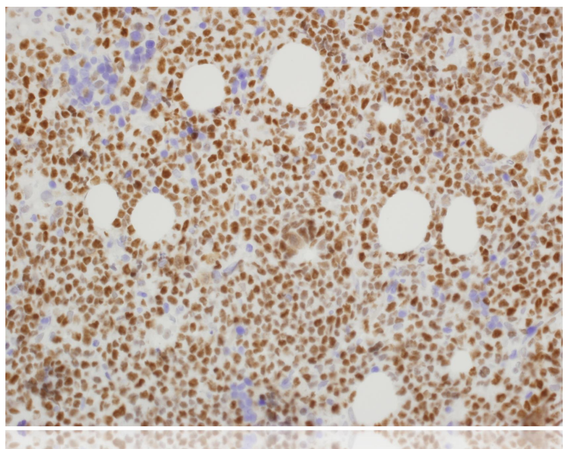
Highly cellular bone marrow with diffuse lymphoma infiltrate.
H&E stain, x20



The neoplastic cells with blastic morphology and numerous mitotic figures.
HE stain, x60



Blastic lymphocytes of the lymphoma strongly positive for CD20.
CD20 stain, x40.



Strong c-myc protein expression in lymphoma cells.
c-myc stain, x40.

BCL2 and BCL6 rearrangements were not detected but the neoplastic cells in the bone marrow showed high level of c-myc.

The patient was negative for EBV and HIV, no CNS involvement. Abdominal computed tomography scan revealed no abnormal findings, chest CT was not performed.

R-CODOX M ⇨ R-IVAC ⇨ R-CODOX M ⇨ COMPLETE REMISSION

Conclusions

This is the first report of Burkitt's lymphoma that occurred after the successful management of MM. Substantial body of evidence supports the notion that patients with MM are at increased risk of secondary malignancies, including acute myeloid leukemia, acute lymphoblastic leukemia and solid tumors (1, 2), and the prognosis in secondary malignancies is poor (3). Variant Burkitt-type translocation (8;22)(q24;q11) in plasma cell myeloma has been often described, and was associated with poorer prognosis (4). We report a unique case of a MM patient with this translocation who subsequently developed a Burkitt's lymphoma. The patient was achieved a complete remission following a bortezomib-based protocol (5) and tandem auto-PBSC. It cannot be excluded that in the setting of high-risk deletion in TP53 gene, the new aggressive neoplastic cells with Burkitt's lymphoma morphology derived from residual clonal plasma cells. That notwithstanding, the sequential incidence of MM and Burkitt's lymphoma needs further observations.

1.Castillo JJ, Gertz MA. Secondary malignancies in patients with multiple myeloma, Waldenström macroglobulinemia and monoclonal gammopathy of undetermined significance. Leuk Lymphoma 2017; 58(4): 773-80.; 2. Thomas A, Mailankody S, Korde N et al. Second malignancies after multiple myeloma: from 1960s to 2010s. Blood 2012; 119(12): 2731–2737.; 3.Areethamsirikul N1, Reece DE. The risk of secondary primary malignancies after therapy for multiple myeloma. Leuk Lymphoma 2015; 56(11): 3012-21.; 4. Kim H, Moon HW, Hur M, et al. Variant Burkitt-type translocation (8;22)(q24;q11) in plasma cell myeloma. Korean J Hematol 2011; 46(2): 135-8.; 5. Hus I, Walter-Croneck Adam, Masternak A, et al. Real-life experience with bortezomib-based regimens in elderly patients with newly diagnosed multiple myeloma and comorbidities: a Polish retrospective multicenter study. Pol Arch Intern Med 2017; 127(11):765-774.