reduction or discontinuation of immunosuppressant agents for restoration of immunity are known to be the best ways to control infection. This report emphasizes the importance of considering the presence of BKV encephalitis in allogeneic SCT recipients on immunosuppressant medications who present with neurological symptoms even though there is no sign of hemorrhagic cystitis.

Suk-young Lee, Se-ryeon Lee, Dae-sik Kim, Chul Won Choi, Byung Soo Kim, Yong Park

Division of Hematology/Oncology, Department of Internal Medicine, Korea University College of Medicine, Seoul, Korea

Correspondence to: Yong Park
Department of Internal Medicine, Korea University College of Medicine, Korea University Medical Center, 73, Inchon-ro, Seongbuk-gu, Seoul 136-705, Korea
E-mail: paark76@hanmail.net

Received on Apr. 9, 2013; Revised on May 23, 2013; Accepted on Jul. 31, 2013

http://dx.doi.org/10.5045/br.2013.48.3.226

Authors' Disclosures of Potential Conflicts of Interest

No potential conflicts of interest relevant to this article were reported.

REFERENCES

1. Hirsch HH, Steiger J. Polyomavirus BK. Lancet Infect Dis 2003;3:611-23.
2. Friedman DP, Flanders AE. MR Imaging of BK virus encephalitis. AJNR Am J Neuroradiol 2006;27:1016-8.
3. Lopes da Silva R, Ferreira I, Teixeira G, et al. BK virus encephalitis with thrombotic microangiopathy in an allogeneic hematopoietic stem cell transplant recipient. Transpl Infect Dis 2011;13:161-7.
4. Behre G, Becker M, Christopeit M. BK virus encephalitis in an allogeneic hematopoietic stem cell recipient. Bone Marrow Transplant 2008;42:499.
5. Gardner SD. Prevalence in England of antibody to human polyomavirus (B.k.). Br Med J 1973;1:77-8.
6. Elsner C, Dorries K. Evidence of human polyomavirus BK and JC infection in normal brain tissue. Virology 1992;191:72-80.
7. Reploeg MD, Storch GA, Clifford DB. Bk virus: a clinical review. Clin Infect Dis 2001;33:191-202.
8. Shinohara T, Matsuda M, Cheng SH, Marshall J, Fujita M, Nagashima K. BK virus infection of the human urinary tract. J Med Virol 1993;41:301-5.
9. Hogan TF, Borden EC, McBain JA, Padgett BL, Walker DL. Human polyomavirus infections with JC virus and BK virus in renal transplant patients. Ann Intern Med 1980;92:373-8.
10. Nickeleit V, Hirsch HH, Binet IF, et al. Polyomavirus infection of renal allograft recipients: from latent infection to manifest disease. J Am Soc Nephrol 1999;10:1080-9.
11. Vago L, Cinque P, Sala E, et al. JCV-DNA and BKV-DNA in the CNS tissue and CSF of AIDS patients and normal subjects. Study of 41 cases and review of the literature. J Acquir Immune Defic Syndr Hum Retrovirol 1996;12:139-46.
12. Behzad-Behbahani A, Klapper PE, Vallely PJ, Cleator GM. BK virus DNA in CSF of immunocompetent and immunocompromised patients. Arch Dis Child 2003;88:174-5.
13. Voltz R, Jager G, Seelos K, Fuhry L, Hohlfeld R. BK virus encephalitis in an immunocompetent patient. Arch Neurol 1996;53:101-3.
14. Vallbracht A, Lohler J, Gossmann J, et al. Disseminated BK type polyomavirus infection in an AIDS patient associated with central nervous system disease. Am J Pathol 1993;143:29-39.
15. Bratt G, Hammarin AL, Grandien M, et al. BK virus as the cause of meningoencephalitis, retinitis and nephritis in a patient with AIDS. AIDS 1999;13:1071-5.

Concomitant transformation of monoclonal gammopathy of undetermined significance to multiple myeloma and of essential thrombocythemia to acute biphenotypic leukemia 37 years after initial diagnosis

TO THE EDITOR: The occurrence of monoclonal gammopathy of undetermined significance (MGUS) and essential thrombocytopenia (ET) in the same patient is quite rare. With an anecdotal purpose, we herein report the long-term clinical history of a patient who presented with simultaneous evolution to multiple myeloma (MM) and to acute biphenotypic leukemia from MGUS and ET, respectively, with the latter conditions simultaneously diagnosed 37 years prior to this case.

CASE

The occurrence of monoclonal gammopathy of undetermined significance (MGUS) and essential thrombocytopenia (ET) in the same patient is quite rare [1-3], usually manifesting as an incidental finding. In addition, the coexistence of multiple myeloma (MM) with ET has also been rarely reported [4-8]. Moreover, the evolution of MGUS to MM simultaneously with blastic transformation of ET in the form of acute biphenotypic leukemia, as observed in this report, represents an exceptionally rare occurrence. With an anecdotal purpose, we herein report the long-term clinical history of a patient who presented with concomitant evolution of MGUS to MM and from ET to acute bipheno-

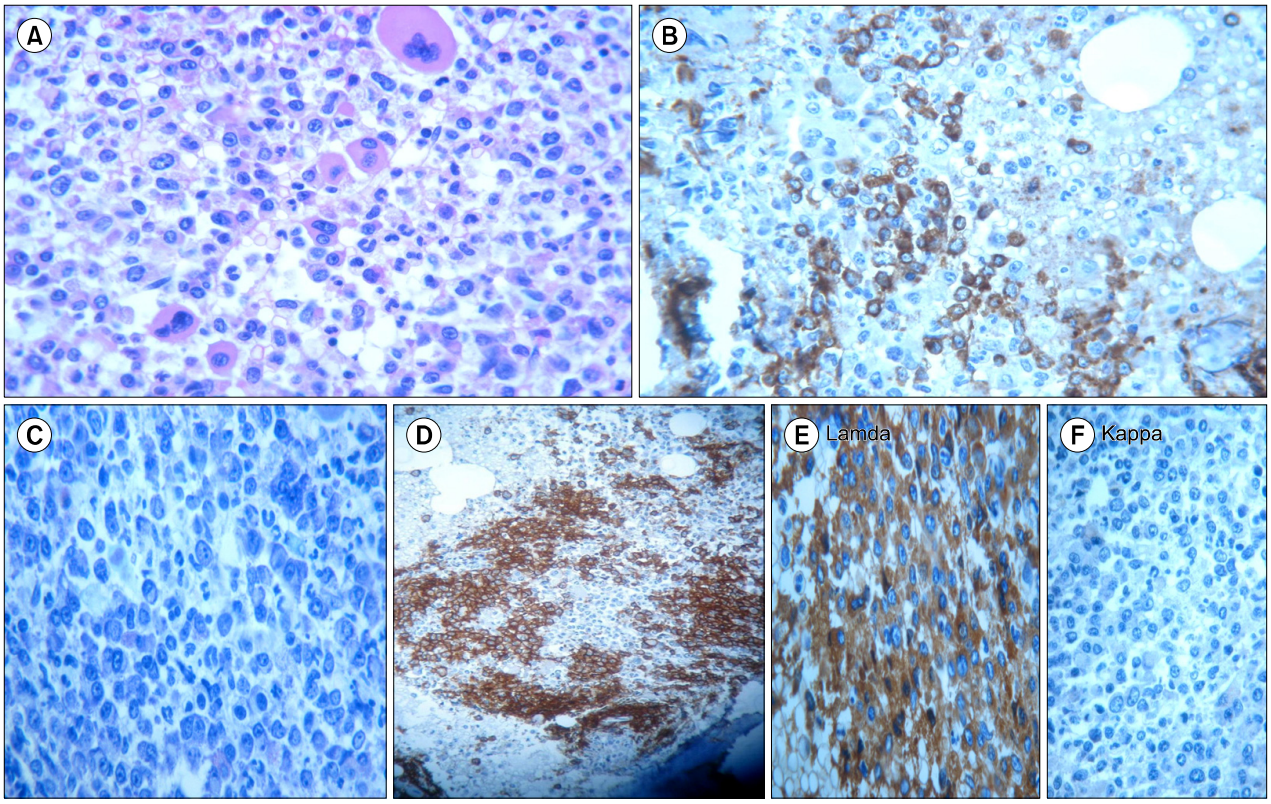

Fig. 1. **(A)** Bone marrow (BM) biopsy shows increased immature precursors and dysmegakaryopiesis. **(B)** CD34 immunostain reveals 20% blasts. **(C)** Clusters of plasma cells (PCs) with mature-like morphology. **(D)** CD 138 immunostain shows strong membrane staining by sheets of PCs, representing 25/30% BM cells. **(E, F)** Immunostainining for light chains reveals monotypic cytoplasmic expression of lambda light chain, suggesting the neoplastic nature of PCs.

typic leukemia, with the original diagnosis of MGUS and ET occurring 37 years prior.

In 2010, a 77-year-old man presented to our center with increasing thrombocytosis and monoclonal paraproteinemia (IgG lambda). In 1975, at another center, he was diagnosed with MGUS associated with ET. The patient was managed according to the prevalent clinical guidelines and received low-dose acetylsalicylic acid (LD-ASA). Upon presentation to our clinic (35 years after original diagnosis and treatment), he reported that for several years he had not been followed up by periodic laboratory evaluations and hematologic examinations. Therefore, a comprehensive work-up, including a bone marrow (BM) aspirate and trephine biopsy, was performed. Megakaryocytic hyperplasia and clustering consistent with ET, along with an infiltration of IgG kappa clonally mature plasma cells (PC) consistent with MGUS, was noted. *Janus kinase 2* (*JAK2*) V617F, P190, and P210 mutation analyses revealed no abnormalities. In addition, no defining features potentially associated with POEMS syndrome [9], which may be suspected on the basis of the coexistence of a *JAK2*-negative thrombocytosis with a monoclonal component, were found by comprehensive work-up; in particular, no organomegalies, skin changes, peripheral nerve abnormalities, or endocrinopathy were present. The radiological evaluation of his skeleton ruled out both lytic and sclerotic bone changes. Human immunodeficiency virus, hepatitis C virus, and hepatitis B virus infections were ruled out by serological evaluations. Therefore, the patient was diagnosed with IgG lambda MGUS concomitant with *JAK2*-negative ET. Given the remarkable thrombocytosis (platelet count, $>1{,}000\times10^9$/L), hydroxyurea was added to LD-ASA. Thereafter, the patient was regularly followed up until 2 years later when his hemogram showed pancytopenia concomitant with an increase in monoclonal protein concentration higher than 4 g/dL. At that time, examination of a BM aspirate revealed a 30% proportion of clonal IgG kappa PC along with 20% blasts; the latter cells, showed coexpression of lymphoid and myeloid markers, being positive for CD34, CD13, CD33, HLA-DR, CD19, and CD22. BM trephine biopsy (Fig. 1) confirmed BM infiltration by PC and blasts. Conventional cytogenetic and fluorescence *in situ* hybridization revealed a normal karyotype; negative *JAK2* V617F, P190, and P210 mutation analyses were confirmed. Unfortunately, no other molecular studies were performed. Physical examination revealed no remarkable findings; in particular, neither upper abdominal organomegalies nor superficial adenomegalies was palpable. Laboratory and radiologic evaluations revealed moderate

Bence Jones proteinuria (lambda type) and mild pancytopenia but no other abnormalities were found. In particular, serum calcium and comprehensive metabolic, renal, hepatic, and coagulative panel results were normal. In addition, skeletal survey showed neither lytic nor sclerotic lesions throughout the axial and appendicular skeleton. The diagnosis of MM coexisting with secondary acute biphenotypic phenotype was made. The patient was evaluated as a possible candidate for treatment with hypomethylating agents, but his condition suddenly deteriorated and he died of pneumonia.

This case lacks practical therapeutic implications and reliable indications for the management of this uncommon occurrence, and our report has only anecdotal value. However, the overlapping occurrence of acute biphenotypic leukemia transformed from ET and MM is extremely rare. We speculate that the synchronous evolution of ET and MGUS along with coexpression of lymphoid antigens by blastic cells could suggest a common origin of these 2 malignancies, potentially evolving from a common precursor by progressive transformation to more aggressive disorders [5]. However, this hypothesis remains to be investigated.

Pasquale Niscola[1], Gianfranco Catalano[1], Stefano Fratoni[2], Laura Scaramucci[1], Paolo de Fabritiis[1], Tommaso Caravita[1]

[1]Hematology Unit and [2]Pathology Department, S. Eugenio Hospital, Rome, Italy

Correspondence to: Pasquale Niscola
Hematology Unit, S. Eugenio Hospital, Piazzale dell'Umanesimo 10, 00144, Rome, Italy
E-mail: pniscola@gmail.com

Received on May 22, 2013; Accepted on Jul. 1, 2013

http://dx.doi.org/10.5045/br.2013.48.3.228

Authors' Disclosures of Potential Conflicts of Interest

No potential conflicts of interest relevant to this article were reported.

REFERENCES

1. Montefusco E, Monarca B, Tribalto M. Coexistent idiopathic thrombocythaemia and monoclonal component: a causal association? Scand J Haematol 1985;35:584.
2. Kyrtsonis MC, Kokoris SI, Kontopidou FN, Siakantaris MP, Kittas C, Pangalis GA. Development of a myeloproliferative disorder in a patient with monoclonal gammopathy of undetermined significance secreting immunoglobulin of the M class and treated with thalidomide and anti-CD20 monoclonal antibody. Blood 2001;97:2527-8.
3. Tosato F, Fossaluzza V, Rossi P, et al. Monoclonal gammopathy of undetermined significance in a case of primary thrombocythemia. Haematologica 1986;71:417-8.
4. Prosper F, Borbolla JR, Rifon J, et al. Coexistence of essential thrombocythemia and multiple myeloma. Ann Hematol 1992; 65:103-5.
5. Majhail NS, Lichtin AE. Rare coexistence of multiple myeloma with essential thrombocythemia: report of two cases. Haematologica 2003;88:ECR09.
6. Kuroda J, Matsumoto Y, Tanaka R, et al. JAK2V617F-positive essential thrombocythemia and multiple myeloma with IGH/CCND1 gene translocation coexist, but originate from separate clones. Acta Haematol 2008;120:177-81.
7. Holtan SG, Hoyer JD, Buadi FK. Multiple myeloma with concomitant JAK2-positive essential thrombocythemia post-successful autologous peripheral blood hematopoietic stem cell transplant. Bone Marrow Transplant 2011;46:615.
8. Eskazan AE, Ongoren S, Ar MC, et al. Essential thrombocythemia and multiple myeloma: two rare diseases in one patient. Clin Lymphoma Myeloma Leuk 2011;11:442-5.
9. Dispenzieri A. How I treat POEMS syndrome. Blood 2012;119: 5650-8.

Waldenstrom's macroglobulinemia presenting with lytic bone lesions: a rare presentation

TO THE EDITOR: Lymphoplasmacytic lymphoma (LPL) is a neoplasm of small B lymphocytes, plasmacytoid lymphoid cells, and plasma cells that usually involves bone marrow, and sometimes, the lymph nodes and spleen; which does not fulfill the criteria for any other small B cell lymphoid neoplasms that may also have plasmacytic differentiation [1]. Waldenstrom's macroglobulinemia (WM) comprises a significant proportion of LPL cases and is characterized by bone marrow involvement and an IgM monoclonal gammopathy of any concentration [2].

When WM was first described, the general belief was that it did not extend to the skeletal system. However, following several reports of lytic bone lesions in WM [3-6], this belief has been challenged. It is now considered that bone involvement in WM may not be unusual. The abnormal feature that was commonly observed in these previously reported cases was the presence of a predominant plasmacytic morphology in the bone marrow of the WM patients with lytic bone lesions. Contrary to these reports, we hereby report a rare case of WM with lytic bone lesions, showing a predominant presence of lymphocytic infiltration of the bone marrow, and very few plasmacytic cells.

CASE

A 65-year-old male patient, who had a 10-year history of hypertension and type II diabetes mellitus, presented with complaints of pain and a tingling sensation in both lower limbs over the previous year and in both upper limbs over the previous 6 months. He also had a history of weight