Central Nervous System Leukemia on Magnetic Resonance Imaging

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A 32-year-old man 5 years previously received allogeneic bone marrow transplantation from his mother for Philadelphia chromosome positive acute lymphoblastic leukemia. He presented with headache, nausea, and pain in the left arm. The neurologic examination revealed no abnormalities except for stiffness of the neck. Gadolinium-enhanced T1-weighted magnetic resonance imaging (MRI) showed diffuse contrast enhancement in the cerebral sulcus (Pictures 1, 2). Lumbar puncture revealed the presence of lymphoblasts (1,109/mm³). Fluorescence in situ hybridization analysis demonstrated that most of the cells in the cerebrospinal fluid (CSF) were Philadelphia chromosome positive, which confirmed the diagnosis of central nervous system (CNS) leukemia. The patient was treated with intrathecal chemotherapy. The number of lymphoblasts in the CSF was gradually decreased and the symptoms were improved. He experienced a bone marrow recurrence 2 months after CNS relapse and died 18 months later. This case shows that enhanced MRI is also useful in the diagnosis of CNS leukemia.

Picture 1.

Picture 2.