

Leukostasis

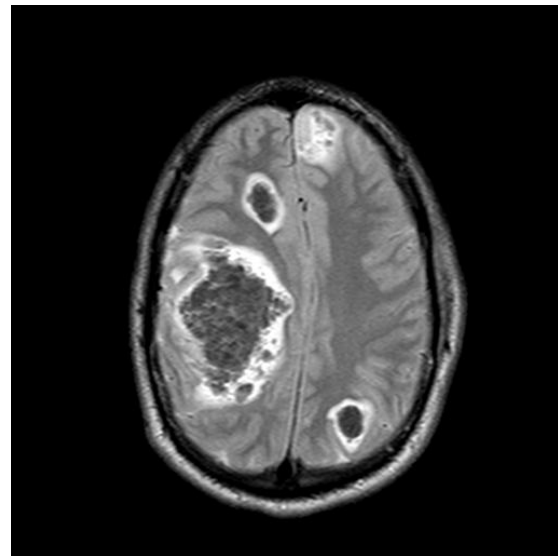
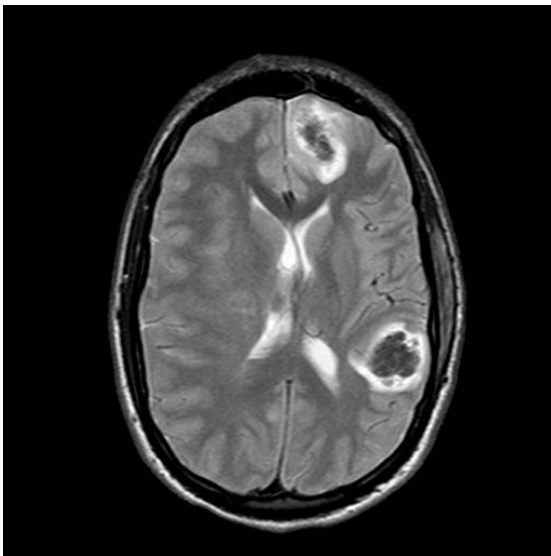
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A 20-year-old male with a one-month history of headache presented for acute onset of left-sided hemiparesis. Physical examination showed a confused, agitated, and combative patient with petechiae in the lower extremities. Laboratory evaluation revealed a white blood cell count of 204,000 with 92% blast cells, hematocrit of 28.2, and platelet count of 20,000. Magnetic resonance imaging of the brain (T2-weighted) showed multiple hypo-intense lesions compatible with multi-focal hemorrhagic foci within the cortical and subcortical white matter. Flow cytometry on peripheral blood was consistent with acute myeloid leukemia (AML). Despite aggressive treatment, a repeated computed tomography scan of the head demonstrated expansion of the intracranial bleed. The patient deteriorated into brain death after 36 hours from admission.

Intracerebral hemorrhage (ICH) associated with leukocytosis is seen most commonly in AML. Severe leukostasis with both dense leukocytes and lack of mobility of the myeloblast lead to direct infiltration and rupture of small brain vessels. Unfortunately, leukapheresis and cranial irradiation do not improve survival or decrease the incidence of ICH in adults with hyperleukocytotic AML.¹

References

¹ Chang MC, Chen TY, Tang JL, Lan YJ, Chao TY, Chiu CF, et al. Leukapheresis and cranial irradiation in patients with hyperleukocytotic acute myeloid leukemia: No impact on early mortality and intracranial hemorrhage. *Am J Hematol* 2007; 82:976-980.

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