
Acute Myeloid Leukemia with Isolated CNS Relapse

Sir,

Central nervous system (CNS) involvement in adult AML occurs in about 15% of patients who have not received CNS directed therapy¹. With the use of high dose cytosine arabinoside this has reduced to less than 1%². Leukaemic meningitis is the most common form of CNS involvement, uncommonly radicular

syndrome as a presentation of CNS relapse can also occur. Herein, we report a case of AML with isolated CNS relapse presenting as radicular syndrome.

Case: A 60 year male presented with bleeding gums in January 2004. Peripheral blood and bone marrow (BM) examination confirmed the diagnosis of AML; 59% myeloblasts, strongly

positive for myeloperoxidase(MPO). Surface marker analysis showed that blasts were positive for CD13 (55%), CD33 (72%). Chromosomal analysis showed 46, XY, t (8:21) in all metaphases analyzed. With diagnosis of AML-FAB M2, he received induction therapy using daunorubicin (45mg/m² x3days), cytarabine (200mg/m² x7days). The patient achieved complete remission (CR) on day 21 BM examination. This was followed by consolidation therapy with 3 courses of high dose cytarabine (3gm/m² BDx3 days) at 4 weeks interval. Five months later he presented with history of pain in the lower back radiating along the posterior aspect of the bilateral lower limbs, which used to increase with straining. There was an associated history of progressive weakness and wasting of the lower limbs predominantly affecting the distal muscle groups. CNS examination revealed normal higher mental functions and no cranial nerve involvement. There was a complete loss of all sensations over L4, 5, S1 regions. Examination of the spine revealed tenderness along the bodies of the dorsal 11,12 and lumbar 1 vertebrae. Rest of the systemic examination was normal.

Bone marrow and peripheral blood examination showed no evidence of leukaemic relapse. The MRI scan revealed a soft tissue extradural mass of isointense signal extending from the T9-L3 levels. The anterolateral aspect of the thecal sac was compressed at these levels.

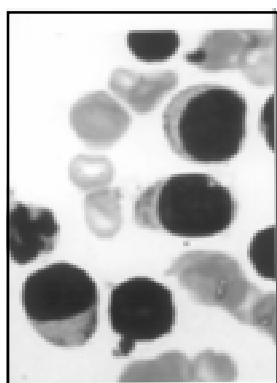


Fig 1 CSF Cytology Showing Blasts

The spinal cord was normal. CSF examination showed numerous blasts (fig1). With diagnosis of isolated CNS relapse of AML, He received intrathecal chemotherapy consisting of

methotrexate 15mg, cytarabine 40mg and dexamethasone 4mg on alternate days along with cranio spinal irradiation (24 grays (Gy) to the cranium and 18 Gy to the spine). He received six courses of intrathecal injections (alternate day schedule) following which CSF became negative. Subsequently he was administered 6 more intrathecal injections (twice a week). Patient's symptoms improved. However he was lost to follow-up after 6 months.

DISCUSSION

CNS is a sanctuary site for leukemic relapse and leukaemic meningitis is the most common form of CNS leukemia. Systemic high-dose cytarabine (HDAC) appears most effective therapy for CNS leukemia, maximally in cases with isolated CNS involvement and it may be combined safely with cranial radiation therapy and Intrathecal methotrexate.

Cranio Spinal Irradiation (CSI) with or without Intrathecal chemotherapy appears to be effective in eliminating leukemia in the craniospinal axis. Intrathecal chemotherapy is administered thrice weekly until the cerebrospinal fluid is cleared of leukaemic blasts and followed up with a maintenance intrathecal regimen, consisting of either methotrexate, cytarabine, or a combination of methotrexate, cytarabine and hydrocortisone. The optimal duration of Intrathecal therapy is unclear³. The eradication of disease in the CNS has not been found to be effective in preventing disease recurrence in the bone marrow, and despite improved control of disease in the CNS, adult patients with a CNS recurrence still have a poor prognosis.⁴ Median CR duration is 7 months for patients with isolated CNS leukemia, and 4 months for those with concurrent extra neural disease.

It is suggested that CNS leukemia arising after cessation of chemotherapy is the result of inadequacy of intrathecal and systemic chemotherapy or drug resistance.⁵ Our patient received three courses of high dose Ara-C that crosses the blood brain barrier to prevent the CNS relapse. There was no infiltration of CSF with leukaemic cells at presentation. However in present case drug resistance causing early relapse cannot be ruled out.

Present case was categorized to be in good risk category based on the cytogenetics and has received adequate CNS directed therapy. Therefore isolated CNS relapse is unusual. On review of literature, we could find four such patients of CNS relapse presenting with radicular syndromes; three cases represented a relapse of AML similar to our case.⁶

**AVS Suresh, PP Loknath, PP Bapsy,
G Anupama, Hemant K Dadhich,
B Ravikiran, Ullas Batra**

Departments of Medical Oncology & Radiation
Oncology Kidwai Memorial Institute of Oncology,
Bangalore-560 029

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