Letters to the Editor

Brain Myeloid Sarcoma, a Rare Extramedullary Manifestation of Acute Myeloid Leukaemia

Dear Editor,

In the patients with myeloid sarcoma central nervous system involvement by leukaemic cells is uncommon and intraparenchymal involvement especially without meningeal or skull involvement is rare.[1]

A 4.5-year-old girl, known case of Acute Myeloid Leukaemia (AML) in remission for 18 months, presented with progressive headache, nausea/vomiting and loss of consciousness. Physical examination showed Glasgow Coma Scale of 10, symmetrical and reactive pupils of normal size as well as right sided hemiparesis. There was no sign of lymphadenopathy, hepatomegaly and splenomegaly. Lab test was normal without any sign of recurrence of systemic AML. Brain CT scan showed a huge extraaxial left hemispheric hyper-dense calcified mass with significant mass effect (Figure 1a). Brain MRI revealed a supratentorial huge lubulated mass on the left hemisphere associated with extent vasogenic oedema and midline shift and subfalcine and transtentorial herniation. The intensity of lesion was seen as iso- to hyper-signal and iso- to hypo-signal and heterogenic and marked enhancement on T1, T2 and T1 with Gadolinium injection sequences, respectively. Also, region of focal hypo-signality in favour of calcification was obvious (Figures 1b to 1f). The patient underwent surgical intervention. Intra-operatively, we encountered a purple, haemorrhagic tumoural tissue associated with calcification. After debulking, the tumour was gross resected. The patient was discharged for brain radiotherapy with completely normal level of consciousness and mild hemiparesis. Eight months of follow up, brain MRI showed no recurrence.

Histopathology demonstrated neoplastic tissue in the patternless sheets of tumoural cells with the high nucleus:

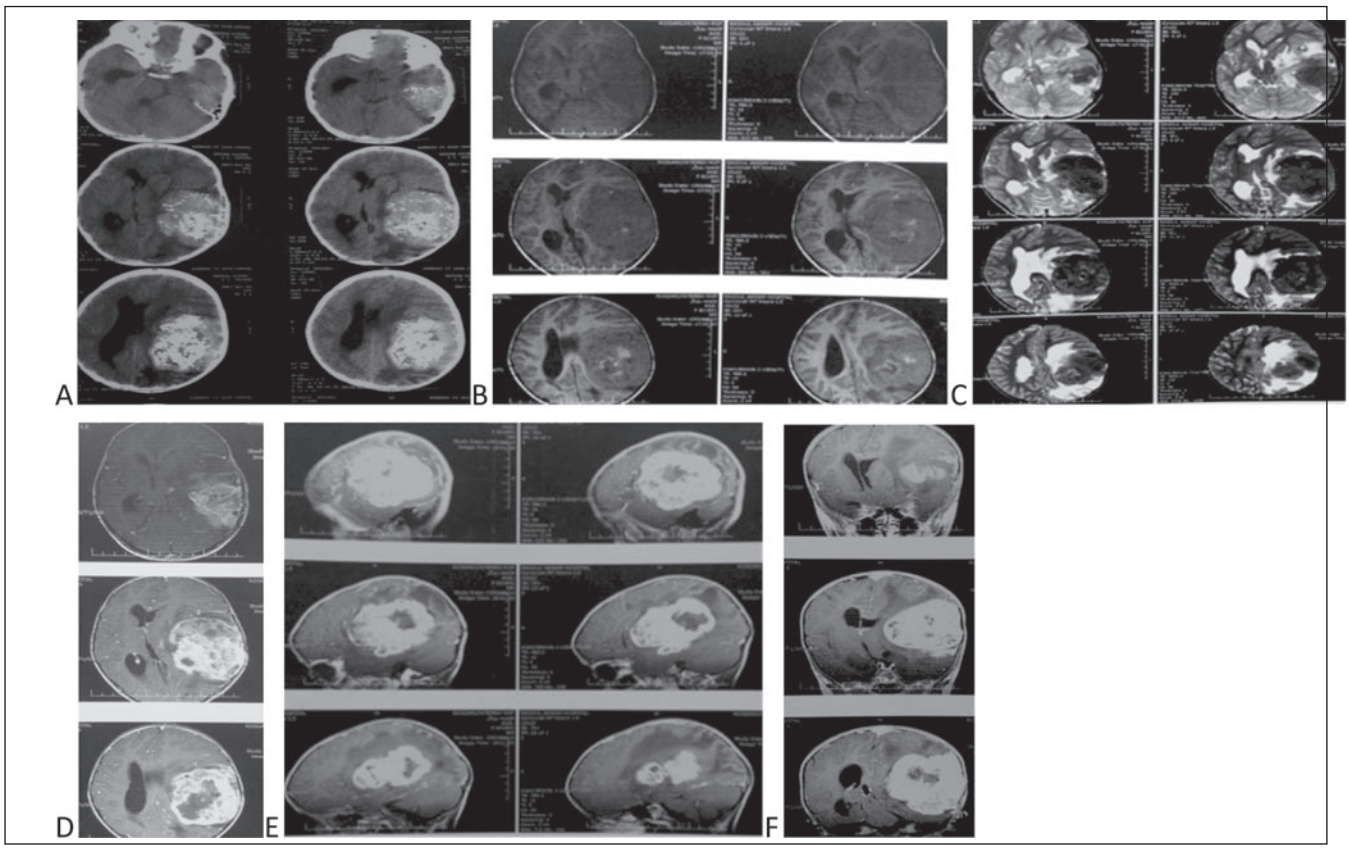

Figure 1 The brain imaging showed the tumour features: (A) The brain non contrast CT scan; (B) T1 sequence MRI; (C) T2 sequence MRI; (D) Axial T1 with Gadolinium (Gd) injection MRI; (E) Sagittal T1 with Gd injection MRI and (F) Coronal T1 with Gd injection MRI.

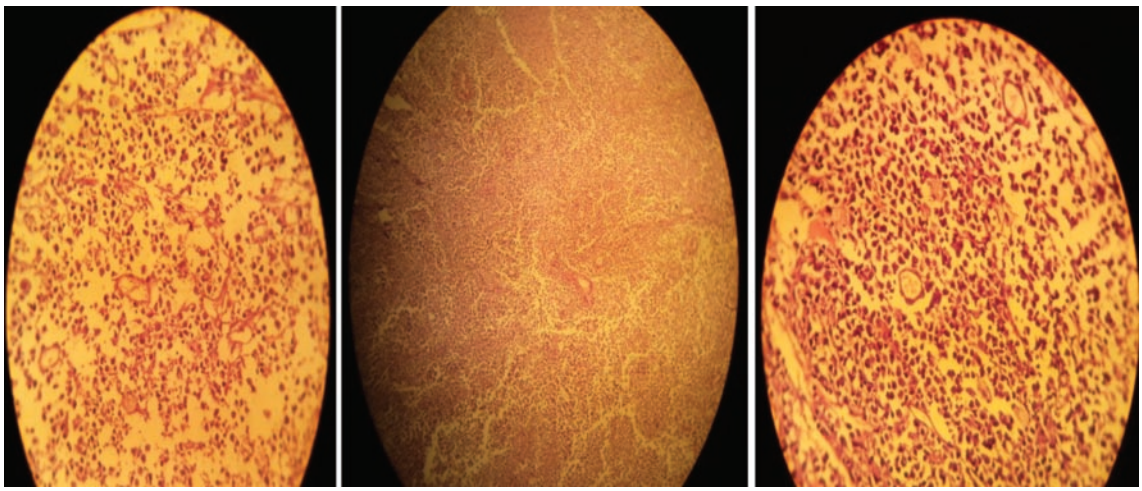

Figure 2 Histopathology showed neoplastic tissue in patternless sheets of tumoural cells with the high nucleus: cytoplasm ratio. A hyperchromatic nucleus, eosinophilic cytoplasm and perivascular predominantly aggregate associated with blood vessel wall infiltration and foci of necrosis and calcification was seen.

cytoplasm ratio (Figure 2). In the immunohistochemical staining, CD68 and CD43 were positive and CD3, CD20, CD99, CD34, Leukocyte Common Antigen, Synaptophysin and Glial Fibrillary Acidic Protein were negative and also Ki67 was positive in 80% of tumour cells. The above histopathologic finding was in favour of the myeloid sarcoma.

In contrast with previous studies reporting this tumour usually occurs in adults (mean age of 35-year-old),[2] in this patient, the brain lesion occurred in a 4.5-year-old female with AML in remission phase.[1,3]

The interesting feature of this patient is the presence of foci of calcification within the tumour. This has not been reported in previous studies.[2] In this patient, CD68 and CD43 were the only positive markers and Ki67 was positive in 80% of tumoural cells. This finding is similar to the Pileri's report that demonstrated CD68/KP1 was the most commonly expressed marker and Ki-67/MIB1 score was always high, ranging from 50 to 95%.[4] As the previous studies suggested the occurrence of brain chloroma as a poor prognosis predictor for blast crisis mortality, despite eight months with no recurrence of brain disease, ultimately, the patient died because of the recurrence of systemic disease.[3,5] In conclusion, in patients with AML, who presenting a brain mass, brain myeloid sarcoma should be considered in differential diagnosis, although it is a rare complication.

Declaration of Interest

The authors declare no conflict of interest.

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