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RESEARCH ARTICLE

FACIAL NERVE PALSY AS THE PRESENTING SYMPTOM OF ACUTE MYELOID LEUKEMIA

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ABSTRACT

Acute lymphoblastic leukaemia (ALL) and acute myeloblasticleukaemia (AML) are the most common malignancies diagnosed in children and arise within bone marrow precursors of lymphoid and myeloid lineages. ALL accounts for one fourth of all childhood cancer and approximately 75% of all cases of childhood leukaemia, with an annual incidence of about 30 cases per million people and a peak incidence in children aged 2–5 years. AML comprises approximately 15–20% of childhood leukaemia (Pui, 2004). Facial palsy is an acute, peripheral, lower motor neuron facial nerve paralysis with a usually favourable prognosis. Its causes are unknown, although it appears to be a polyneuritis with possible infectious, inflammatory, autoimmune and metabolic aetiologies. In addition, facial palsy is an unusual presentation of leukaemia and other lymphoid and myeloid malignancies where facial neuritis has secondary involvement (Löwenberg *et al*., 1999). Facial paralysis in children is very often idiopathic and isolated facial nerve palsy, resulting from leukemic infiltration is a rare occurrence. Facial palsy is not well recognized as a presenting symptom of childhood leukemia, especially in acute myeloid leukemia (AML) (Karimi *et al*., 2009). Here we present the case of a 13 year old boy with acute myeloid leukemia, who first presented with isolated right side peripheral facial nerve paralysis. The presence of Bell's palsy in young children requires a complete evaluation, keeping in mind the possibility of leptomeningeal disease. The purpose of reporting this case is to emphasize the need of examining the peripheral blood and bone marrow in children presenting as facial palsy for early diagnosis of childhood AML.

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INTRODUCTION

A 13year old boy presented to our hospital with left facial palsy and fever for last 2 days. On examination, he was found to be anemic without petechial patches and had loss of appetite and weight. There were no symptoms of raised intracranial tension. His systemic neurological examination showed left facial nerve palsy. There was hepatosplenomegaly and no lymphadenopathy. Ophthalmological examination revealed no papilledema, haemorrhage and no KF ring on slit lamp examination. Ocular movements were not restricted and were normal in all directions. Pupillary reflexes were normal in both eyes. His hemoglobin was 4.2gm% and the total leukocyte count was 12100/mm3, differentiated leukocyte count showed 14% neutrophils, 32% lymphocytes, 2% eosinophil, 52% blast and platelet count was 49,000/mm3. Peripheral smear showed blasts whichwere three times the size of normal with scant to moderate cytoplasm with few nucleochromatin and 1-2 nucleoli with decrease platelets. The contrast CT scan brain was normal.

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The bone marrow aspiration showed hypercellular marrow smears with 69% blast, 1% myelocytes and metamyelocyte each with occasional megakaryocyte and suppressed erythroid cells conforming to the diagnosis of acutemyelocytic leukemia, flow cytometry further confirmed diagnosis of AML, M2 (45% blasts showed positivity for CD45, CD33, CD117, CMPO, CD34, HLADR). The CECT brain and CSF analysis were normal. Thus, the patient was diagnosed as AML, M2 with extramedullary disease involving left facial nerve palsy. So patient was referred to hematoncology department for further management.

DISCUSSION

Facial palsy is an idiopathic acute peripheral palsy involving the facial nerve which supplies all the muscles used for facial expression. Facial palsy has been described in patients of all ages with an incidence of 2.7 per 100 000 in children under 10 years of age. There have been some reports of an association between facial palsy and acute leukemia in the literature in some of which findings were seen in CSF and MRI brain (Bilavsky, 2006; Ozçakar *et al*., 2003; Pereira, 2012; Levy, 1986; Takhenchangbam *et al*., 2013).

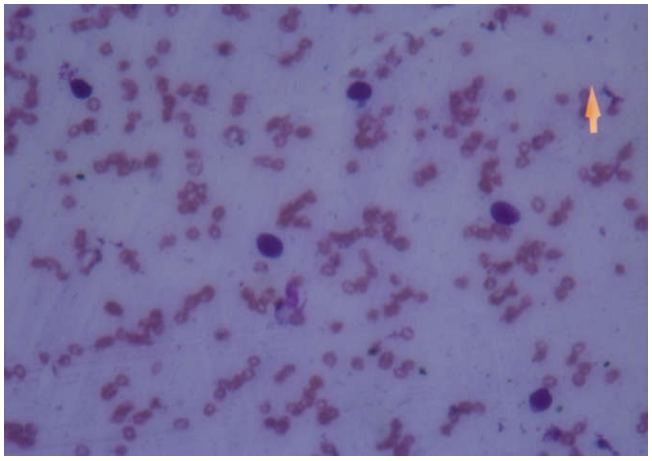

Figure 1. Peripheral smear showing three times larger blasts with scant to moderate cytoplasm with few nucleochromatin and 1-2 nucleoli with decrease platelets

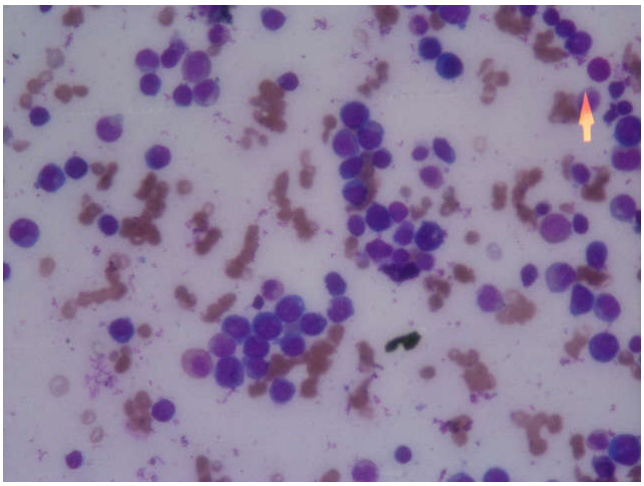

Figure 2. bone marrow showing hypercellular marrow smears with 69% blast, 1% myelocytes and metamyelocyteeach with occasional megakaryocyte and suppressed erythroidcells

In this case report, we describe a case of facial palsy as the first manifestation of childhood leukemia (AML). On presentation, there was fever and facial nerve palsy but CECT brain revealed no evidence of facial nerve or meningeal enhancement. Negative results of CECT may reflect the fact that thin slicing of the facial canal was not performed so MRI brain is needed. CSF analysis was normal without any leukemic cells. In most of the cases facial palsy was improved after chemotherapy and radiotherapy but in few relapse of leukemia was seen despite complete remission and clinical improvement

Surrounding meningeal involvement of the nerve and direct leukemic infiltration of the tympanic cavity and temporal bone can cause injury to the facial nerve in patients with leukemia. Although brain MRI is well known to prove cranial nerve involvement in facial palsy, it is shown that brain MRI and CSF cytology does not provide definite results in all patients (Karimi *et al*., 2008).

The routine use of steroid treatment in patients having idiopathic facial nerve palsy may cause partial remission but leads to delay in diagnosis of acute leukemia therefore all such patients specially in pediatric age group must be evaluated for any systemic involvement which can suggest us about differential diagnosis acute leukemia and should be followed up and examined for any new signs or symptoms of leukemia in further visit.

Conclusion

We should always evaluate systemic and hematological parameters in children who present as idiopathic facial nerve palsy because even one diagnosis in time is worth all the effort.

Conflict of interest

There are no conflict of interest as per this case report is concerned.

Author's contribution

All the authors have worked together to come to diagnosis and writing this report so that there can be contribution in diagnosing and detecting rare diseases which can help in making medical fraternity more helpful than it ever was.

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