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# Facial Nerve Palsy in Childhood Acute Myeloid Leukemia – A Rare Case Report

Medical Science

**KEYWORDS :** Facial palsy , Acute myeloid leukemia , Acute lymphoblastic leukemia , Whole brain irradiation.

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## ABSTRACT

*Facial palsy is not uncommon in children and usually carries a good prognosis for the idiopathic variety. However, it can be a presenting symptom of an underlying malignancy. We report a case of young boy who presented with unilateral facial palsy and was initially diagnosed as 'Bell's palsy'. On examination he had evidence of an underlying malignancy on the blood film and was diagnosed with Leukemia. Facial palsy as the presenting symptom of Leukemia is very rare, especially in Acute Myeloid Leukemia. Young children presenting with facial palsy should be carefully examined and a possibility of Leukemia should be considered. It is important to recognize neurological manifestation of childhood Leukemia because a delay in diagnosis can have an adverse effect on survival.*

**INTRODUCTION :** Facial paralysis is a well described clinical condition in adults though less common in children. The incidence is estimated to be 2.7 per 100,000 under the age 10 years and 10.1 per 100,000 between the age of 10 and 20 years(1). Majority of cases are unilateral and idiopathic, called Bell's palsy. Facial palsy is not well recognized as a presenting symptom of childhood leukemia, especially in Acute Myeloid Leukemia (AML). A review of the medical literature identified eight children with AML who had facial paralysis as the presenting sign(2, 3). Most such cases have blast cells in the

cerebrospinal fluid (CSF) and are treated with systemic and intrathecal chemotherapy, and whole brain irradiation (WBI) for recovery of facial palsy. Acute Lymphoblastic Leukemia (ALL) and Acute Myeloblastic Leukemia

(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 cancers and approximately 75% of all cases of childhood leukemia, 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 leukemia(4,5). 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(6). In addition, facial palsy is an unusual presentation of Leukemia and other lymphoid and myeloid malignancies where facial neuritis has secondary involvement(7,8).

We present a case of childhood Acute Leukaemia where facial palsy was the first manifestation of disease but no blast cells were found in the CSF.

***CASE REPORT :*** A 14 year old male patient presented with complain of acute onset of low grade fever since past 20 days. Fever was high during evening and night. Patient also complained of decreased appetite since 15 days. Then patient complained of decreased hearing in left ear since 1 week and it was sudden in onset and progressive in nature. At the same time his family noticed deviation in the angle of mouth with dribbling of saliva on the right side. At the time of admission his temperature was 100.2 degree C, Pulse was 102 beats/min, Respiratory rate was 26/min. On examination he appeared pale with no cyanosis and had left motor neuron facial palsy. Cardio-Vascular system and Respiratory system appeared normal. There was no significant family history. He was diagnosed as Bell's Palsy and routine blood tests were advised. Haemoglobin was 5.8gm% , White blood cell count was 16 x 10^3/ul and platelet count was 84 x 10^3/ul. Peripheral blood smear showed 67% blasts and was suggestive of Acute Leukemia. CSF examination didn't show any blasts. CT and MRI findings were also normal. Flow cytometric analysis of peripheral blood findings were consistent with AML. Chromosomal study was done and showed a variant t(8;21) with an involvement of the third partner chromosome 10. Also seen the t(1;2) and a loss of the sex chromosome Y.

***DISCUSSION :*** Facial palsy can occur as a complication of haematological malignancies due to relapse of the underlying disease, but is very rarely reported as a presenting symptom itself (9,10). However the frequency of 'symptomatic' facial palsy is higher in younger age group as compared to the 'idiopathic' variety(12).

Cartwright et al.(11) reported 1% incidence of lower motor neuron facial nerve palsy in patients with lymphoproliferative malignancies. However in majority of patients facial nerve palsy was diagnosed at least five years before the presentation of malignancy. Possible etiological factors leading to facial nerve weakness could be either due to direct infiltration of leukemic cells into the facial canal or increased predisposition to infections due to suppressed immunity in these children. Bilavsky et al (6) reviewed all 8 children published in the literature until 2002 who presented with facial palsy and had Leukemia. They found that the age of children ranged from 8 months to 17 years and time from the appearance of facial paralysis to the diagnosis of Leukemia varied from 1 day to 1 month. Although ALL is 7 times more prevalent than AML in children, 6 of the total 8 children described with facial paralysis had AML. 5 children had chloroma or granulocytic sarcoma which is a localized tumour composed of immature cells of granulocytic line associated with myeloid leukaemia. In majority of cases tumour was close to the middle ear and infiltrated the temporal bone. In our patient there was no evidence of associated localised tumour.

Our patient had facial palsy as the primary presenting symptom.

The t(8;21) is seen in around 10%-15% of AML patients.

The loss of chromosome Y is an associated secondary change seen in more than 50% cases with t(8;21).

This case highlights that the haematological malignancies can rarely present as facial palsy in young children, without other classical signs and symptoms. Early diagnosis and treatment of underlying malignancy is crucial for a better outcome. Detailed history and examination must be carried out in all children presenting with facial palsy to rule out haematological malignancy. Full blood count and blood film should be considered in all children presenting with lower motor neuron facial nerve palsy.

***CONCLUSION:*** In conclusion Acute Leukemia should be considered early in the differential diagnosis of facial palsy and intensive CNS therapy based on chemotherapy and radiotherapy in patients with Leukemia and facial palsy even when the results of MRI and CSF cytology are negative.

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