

## Case Reports

### Down's Syndrome with Transient Myeloproliferative Disorder

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Children with Down's syndrome are at an increased risk for development of several hematological disorders like acute leukemia, acute myelofibrosis of childhood and transient myeloproliferative disorder (TMD)(1). Transient myeloproliferative disorder is recognized shortly after birth or in neonatal period and is characterized by leukocytosis and thrombocytopenia, which resolves spontaneously in few weeks to months(2). Transient myeloproliferative disorder is an uncommon syndrome strongly associated with abnormalities of chromosome 21(3). To the best of our knowledge this entity has not been described in the Indian literature. Here we report our experience of one such case.

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### Case Report

A 1420 g girl was born after 37 weeks of gestation to a 22 years old mother with uncomplicated pregnancy: Apgar scores were 1 and 6 at 1 and 5 minutes, respectively. Physical examination revealed hypotonic infant who was small for date and bore stigmata of Down's syndrome. These included mongoloid slant, low set ears, high arched palate, short neck, short and broad hand, clinodactyly and increased distance between great toe and second toe. Karyotype revealed 47, xx + 21, chromosomes. The initial neonatal course was marked by respiratory distress, which lasted for five days. Bacterial cultures were sterile. The child had no evidence of hepatosplenomegaly, skin bleeds and cutaneous leukemia. Semiquantitative estimation of G-6PD revealed deficient levels.

Hemogram on day one was abnormal with total leukocyte count of 44,000, 90% being blasts (*Fig. 1*). Repeated complete leukocyte count showed persistent abnormalities which returned to normal during subsequent four weeks (*Fig. 2*). The subsequent course was marked by failure to gain weight till the age of four weeks. The child started to gain weight after correction of anemia.

### Discussion

Of the hematological abnormalities, transient abnormal myelopoiesis is exclusively seen during the neonatal period and is self limiting in majority of cases (4). The nature of this phenomenon is not

clearly understood. It is believed not to be a true leukemia. Rarely this disorder is seen in phenotypically normal infants who are mosaics for trisomy 21. Trisomic karyotype in such cases is restricted to abnormal hematologic clone(5). Infants with transient myeloproliferative disorder have hepato-splenomegaly, leukocytosis, with white cell count over 100,000/ $\mu$ l and frequently thrombocytopenia(6). The index case had leukocytosis and thrombocytopenia with blast cell count

ranging from 42 to 90%, which subsequently became normal on follow up. Our patient had deficient levels of G-6PD in RBC which is contrary to the usual finding of increased levels(7). Distinguishing transient myeloproliferative disorder from acute leukemia on morphological basis is difficult. Patients with acute leukemia have clonal chromosomal abnormality and evidence of myelodysplastic syndrome (MDS) (8). In our patient there was no clonal

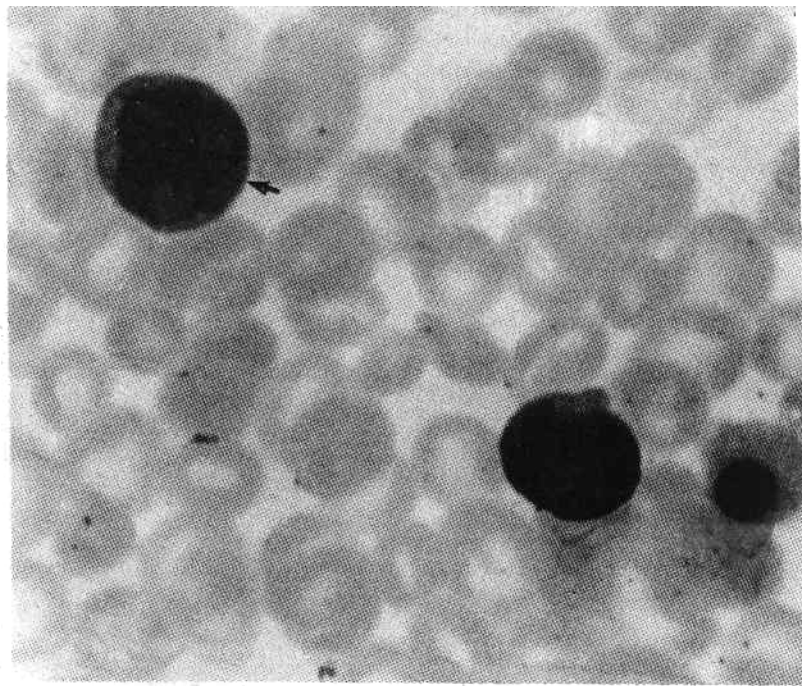


Fig. 1. Photomicrograph showing blast cells ( $\rightarrow$ ) in peripheral smear (Leishman  $\times$  2750).

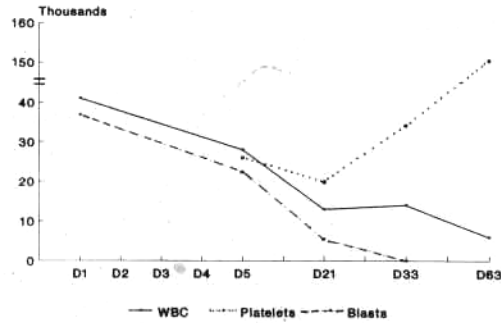


Fig. 2. Serial leukocyte, platelet and blast cell counts.

chromosomal abnormality except trisomy 21. Persistence of minor undetected clonal chromosomal abnormality in TMD may eventually result in development of leukemia(8). Involvement of skin favors diagnosis of acute leukemia. Spontaneous resolution of TMD by 2-3 months may be related to trisomy 21(3).

Similar phenomenon has been observed in Down's syndrome patients beyond neonatal period, only to be followed by reappearance of blast cells and death. Acute leukemia after TMD remission occurs in approximately 20% of cases and poor prognostic factors in transient myeloproliferative disorder include other chromosomal abnormality, evidence of MDS, emergence of new chromosomal disorder,

In view of the transient nature, specific antileukemic therapy is not indicated, unless there is hematological progression of disease(6). Persistence of even small clone of trisomic cells and involvement of skin(3).

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