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SCIENTIFIC LETTER

Dyskeratosis Congenita with Acute Pre B Cell Lymphoblastic Leukemia in a 10-year-old Girl

Vijayashekaran Kalasekhar · Srivaishnava Ranjith · Chandrasekaran Venkatesh · Ballambhattu Vishnu Bhat · Dubashi Biswajith · Smitha Kayal

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To the Editor : A 10-y-old girl born to second degree consanguineous parents was admitted with progressive hyperpigmentation of face, trunk and limbs since early childhood, increasing pallor of 5 mo, increasing lethargy and poor appetite of 2 mo duration with limb pain. Examination revealed severe pallor, generalized lymphadenopathy, skin hyperpigmentation interspersed with hypopigmentation over face, trunk and extremities (Fig. 1) and dysplastic nails over toes (Fig. 2). Oral mucosa was hyperpigmented with glossal leukoplakia and dental caries. She was febrile at admission with pulse rate of 124/min and respiratory rate of 40/min. She had bone tenderness, firm splenomegaly and systolic murmur over precordium. Investigations revealed hemoglobin of 3.4 g/dl, total leukocyte count of 5800/cu.mm, with differential count of N30, E3, L28, M3, MC-2, lymphoblasts in peripheral blood smear, and platelet count of 20,000/cumm. Bone marrow examination revealed hypercellular marrow with replacement of marrow spaces by blast cells and suppression of trilineage hematopoiesis. Immunohistochemistry of the marrow and flow cytometry was suggestive of acute pre-B cell lymphoblastic leukemia. Radiological examination was normal. Cerebrospinal fluid analysis was normal. G-banding karyotyping showed normal 46XX. Stress cytogenetics showed no chromosomal breakage or triradial formation. A diagnosis of dyskeratosis congenita (DC) with pre B cell acute lymphoblastic leukemia (ALL) was made and treatment with MCP841 protocol was initiated. Bone marrow remission was achieved without any complications at the end of induction phase of chemotherapy.

Dyskeratosis congenita, a rare disorder of telomere biology, is characterized by a classic triad of dysplastic nails, lacy reticular pigmentation of the upper chest and/or neck, and oral leukoplakia [1]. DC may be X-linked, autosomal dominant or autosomal recessively inherited [2]. Individuals with DC have very short telomeres in all leukocyte subsets secondary to mutation in telomere genes. However, they do not demonstrate increased chromosomal breakage with cross-linking agents [3]. Diagnosis may be confirmed by gene sequence analysis of *DKC1*, *TINF2*, *TERT*, *TERC*, *NHP*, *NOP* genes. Aplastic anemia and malignancy are frequent in individuals with DC. Excessive telomere shortening and defective DNA

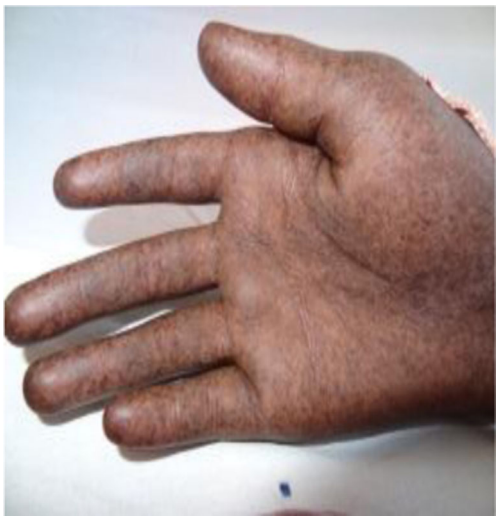

Fig. 1 Lacy reticulate pigmentation of palm

V. Kalasekhar · C. Venkatesh (✉) · B. V. Bhat
Department of Pediatrics, Jawaharlal Institute of Postgraduate Medical Education & Research, Puducherry 605006, India
e-mail: cvenkatesh@hotmail.com

S. Ranjith · D. Biswajith · S. Kayal
Department of Medical Oncology, Jawaharlal Institute of Postgraduate Medical Education & Research, Puducherry, India

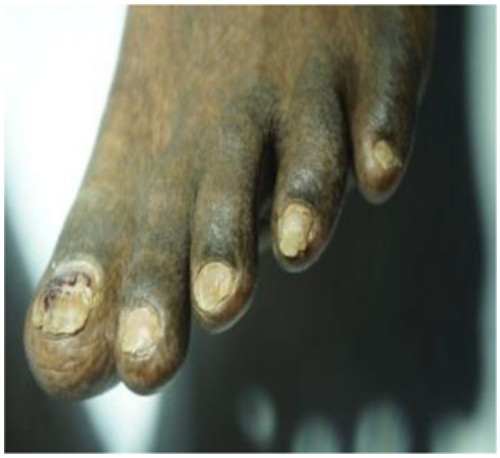

Fig. 2 Dysplastic toe nails

repair leads to genomic instability and high risk of malignant transformation [4]. The most frequent cancers in DC are squamous cell carcinoma of the skin and head & neck region; anogenital and esophageal cancers. Solid tumors and acute myelogenous leukemia (AML) are less frequent. ALLs have never been reported so far in individuals with DC. This is probably the first report of the association of pre B cell ALL with DC in children to the best of our knowledge.

Conflict of Interest None.

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