Pediatr Blood Cancer 2004;43:707–708

LETTER TO THE EDITOR
Hemihypertrophy and Myelodysplasia

To the Editor: Hemihypertrophy is an uncommon finding, with a live-birth incidence of 1/86,000 [1]. Older reports quote an higher incidence, 1/14,000, and its true estimate may still change as more people became aware of it. The incidence of myelodysplasia is even lower—about 1/100,000 [2]—and is truly rare under 2 years of age.

The association between hemihypertrophy and various malignant tumors is known, especially Wilms tumor, and less frequently adrenal cell carcinoma, hepatoblastoma, neuroblastoma, haemoangioendothelioma, and rhabdomyosarcoma [3–6]. Acute myeloblastic leukemia was reported in two patients with congenital hemihypertrophy, but both had been exposed to high doses of therapeutic and/or diagnostic irradiation [7]. We encountered a child with hemihypertrophy associated with myelodysplasia in the absence of any known predisposing cause.

He was born after an uneventful pregnancy to healthy unrelated parents of Albanian ancestry. Parental ages were 31 (father) and 25. Family history is negative, and a 3-year-old brother is healthy. At birth, weight, height, and head circumference were at the 50th percentile and no obvious asymmetry was recorded. The parents reported normal growth and development until 7 months of age when they noticed lower limb asymmetry. Physical examination then revealed a well nourished boy, with height, weight, and head circumference still at the 50th percentile. The left arm was longer (0.5 cm) and thicker than the right arm, with the asymmetry more evident on the forearm (left forearm circumference 1 cm > than right). The right leg was longer (0.5 cm) and thicker than the left leg, with a more pronounced distal asymmetry (left calf circumference 1.5 cm > than right). A careful physical examination failed to demonstrate any asymmetry in the skull, chest, or pelvis. Abdominal ultrasound showed equal and normal size kidneys; color Doppler ultrasound examination of the lower limb vessels revealed no abnormalities. There were no clinical signs relevant to hyperplasia syndromes such as the Proteus, Klippel–Trenaunay–Weber, or Beckwith–Wiedemann complexes.

Routine blood tests were normal apart from a low platelet count (57,000/mmc), which was confirmed at several subsequent studies. A bone marrow analysis revealed dysmyelo- and dyserythropoiesis, which was interpreted as "Refractory Anemia with Excess on Blasts" (RAEB). The diagnosis was confirmed by biopsies at independent centers. Normal male karyotype was observed in both peripheral blood lymphocytes and bone marrow on two distinct samples obtained at 2-month intervals. Analysis of two skin fibroblasts samples obtained from the left and right side confirmed this result. The patient underwent bone marrow transplantation (BMT) from an unrelated donor, but no engraftment was obtained. A second BMT from his mother resulted in good engraftment, but the patient died aged 24 months because of a cerebellar hemorrhage 4 weeks after transplantation.

The patient's past history did not contain any of the factors known to predispose to the development of the myelodysplastic syndromes (gamma irradiation, alkylating agents, etc.) and no signs or symptoms pointing to Bloom syndrome or Fanconi anemia were present. Even if the higher reported incidence is considered, still the probability that the two disorders happened in the same patient by chance seems quite low. Thus, we feel that hemihypertrophy might act as a genetic risk factor for developing a panel of different tumors including hematologic malignancies as already suggested for other conditions [3]. Clinical surveillance for neoplasms other than Wilms tumor may be indicated.

A. Guala, MD
Divisione di Pediatria
Ospedale SS. Pietro e Paolo
Borgosesia, Italy

G. Pastore, MD
Divisione di Pediatria
Ospedale S. Andrea
Vercelli, Italy

F. Fagioli, MD
Oncologia Medica, Clinica Pediatrica
Universita'di Torino
Torino, Italy

S. Scappaticci, PhD
C. Danesino, MD*
Genetica Medica
Universita'di Pavide IRCCS S. Matteo
Pavia, Italy

*Correspondence to: Dr. C. Danesino, Genetica Medica, Universita'di Pavide IRCCS S. Matteo, C.P. 217 27100 Pavia, Italy.
E-mail: cidi@unipv.it

Received 27 January 2004; Accepted 28 June 2004

DOI 10.1002/pbc.20152

REFERENCES

1. Tomooka Y. Congenital hemihypertrophy and medullary sponge kidney. Br J Radiol 1988;61:851–853.
2. Emanuel PD. Myelodisplasia and myeloproliferative disordes in childhood: An update. Br J Haematol 1999;105:852–863.
3. Hoyme HE, Seaver LH, Jones KL, et al. Isolated hemihyperplasia (hemihypertrophy): Report of a prospective multicenter study of the incidence of neoplasia and review. Am J Med Genet 1998;79:274–278.
4. Miller JH, Gillet PM, Hendry GM, et al. Congenital hemihypertrophy and epithelioid haemangioendothelioma in a 10-year-old boy: A case report. Pediatr Radiol 1999;29:613–616.
5. Samuel DP, Tsokos M, DeBaun MR. Hemihypertrophy and a poorly differentiated embryonal rhabdomyosarcoma of the pelvis. Med Pediatr Oncol 1999;32:38–43.
6. Yoon G, Graham G, Weksberg R, et al. Neuroblastoma in a patient with Beckwith–Wiedemann syndrome. Med Pediat Oncol 2002;38:193–199.
7. Vergara B, Svarch E. Myeloblastic leukemia and congenital hemihypertrophy. J Pediatr 1977;90:1036–1037.