



A



C



B

A Hair-on-End Skull

A 24-year-old man with thalassemia major was seen for joint pain without swelling in both ankles and hands. He had received a total of 37 transfusions. He had a fetal hemoglobin value of 94 percent and an A₂ hemoglobin value of 1 percent; his father had a high percentage of A₂ hemoglobin, and his mother a high percentage of fetal hemoglobin and a normal A₂ hemoglobin value. A lateral film of the skull (Panel A) showed generalized osteopenia, widening of the diploetic space (arrows), and thinning of the outer table. The characteristic “hair-on-end” appearance of the outer table spares the inferior aspect of the occiput. A sagittal view of a T₁-weighted magnetic resonance image of the skull (Panel B) shows expansion of the diploetic portion of the cranium (arrows) and the clivus and obliteration of the air space of the sphenoidal sinus. A radiograph of the tibia and fibula (Panel C) shows coarse osteopenia, cortical thinning, small cystic lesions, and a widened marrow cavity. All these features are compatible with the presence of massive hyperplasia of the bone marrow.

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