Letter to the Editor

Acute leukemia presenting as bone pain with normal white blood cell count

Dear Editor,

Bone pain can occur in leukemia patients when the bone marrow expands from the accumulation of abnormal white blood cells and may manifest as a sharp pain or a dull pain, depending on the location.[1] The long bones of the legs and arms are the most common location to experience this pain. Bone pain is commonly one of the presenting features of acute leukemia in childhood. Bone and joint pain have been reported to occur in 21–59% of children with acute leukemia. However, only 4% of adults with acute leukemia present with musculoskeletal manifestations. These patients often have relatively normal blood cell counts and a lower incidence of organomegaly.[2] This form of presentation can lead to delays in the diagnosis of acute leukemia in adults. We experienced the case of a 41-year-old male with acute leukemia presenting as bone pain with a normal white blood cell count.

The patient was transferred to our hospital with complaints of severe back and leg pain and dyspnea for 3 days. Three days prior to the presentation, he felt pain in his left scapula and the pain expanded to back, pelvis, chest, and legs with increasing severity. He had a past history of allergic rhinitis. He was on no medications and denied any significant family history. Upon physical examination, vital signs were within normal limits and physical examination showed no icterus or pale conjunctiva. The patient had no pallor, lymphadenopathy, organomegaly, or rashes, and had a normal body temperature. Laboratory data were as follows; D-dimer, 30.5 (normal range, <0.5) μg/mL; platelets, 63,000 (normal, 15–35) /μL; a normal white blood cell count 60.2×10^2 (normal, 40–90) /μL (segmented neutrophils 35.4%, lymphocytes 41.7%, monocytes 20.3%, eosinophils 2.1%, basophils 0.5%), lactate dehydrogenase, 2,254 (normal, 119–229) U/L; alkaline phosphatase, 292 (normal, 115–359) U/L; C-reactive protein, 20.3 (normal, <0.3) mg/dL. Preliminary radiological investigations of the bones, X-rays of the chest, femur, hip joints, and lumbar spine, echocardiogram, and whole body contrast-enhanced computed tomography scans were normal. Based on these examinations, multiple lesions of the bones were less likely. As hematological disorder was suspected, the patient was referred to the hematology department and a powered peripheral blood smear test showed numerous circulating blasts consistent with acute myeloid leukemia. The specimens of the bone marrow aspiration were reviewed by the hematology department, revealing marrow infiltration by acute lymphoblastic leukemia. Following chemotherapy, the patient received an allogeneic bone marrow transplant and prophylactic intrathecal chemotherapy.

Metastatic bone disease and infectious causes were high on our differential diagnosis for the differential diagnosis for the symptoms of the patient based on imaging and frequency of these diseases. Bone marrow necrosis, characterized by fever, bone pain, and increased levels of lactate dehydrogenase and C-reactive protein, should be taken into consideration.[3] Bone marrow necrosis, often accompanied with acute leukemia, is a rare clinicopathologic entity defined as the destruction of hematopoietic tissue and marrow stroma with preservation of bone. Leukemia should always be considered in patients with unexplained pain in the back or of the epiphysis of the long bones, or joint pain out of proportion to the severity of existing arthritis when there is no history of trauma.[4,5] Of note, the absence of markedly abnormal hematological values does not exclude the diagnosis of leukemia.

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CONFLICT OF INTEREST

NONE.

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