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Disseminated Rhabdomyosarcoma Presenting as Hypercalcemia

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Hypercalcemia may be seen in children with malignancy. We report a 4-year old child with rhabdomyosarcoma that initially presented with signs of hypercalcemia and bone involvement.

Key words: *Hypercalcemia, Metastasis, Rhabdomyosarcoma.*

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Hypercalcemia is one of the severe complications of malignant diseases. For patients with rhabdomyosarcoma particularly with bone metastasis, hypercalcemia may be an initial sign [1]. We report a child with rhabdomyosarcoma that initially presented with signs of hypercalcemia and bone involvement, but the primary mass could not be detected.

CASE REPORT

A four-year old girl presented with complaints of high fever and difficulty in walking. The patient had generalized pain increasing with movement in her extremities and experienced fatigue and weakness. Laboratory tests showed hypercalcemia (15.3 mg/dL) increased LDH (1261 UI/l) and anemia (8 g/dL). Platelet and white blood cell count were normal. Routine serum biochemistry, including parathormone levels (14 pg/mL, normal 15-68 pg/mL) were normal. In addition, 24-hour-urinary calcium excretion (117 mg/24h, normal 80-320) and 24-hour-urinary VMA/creatinin ratio (8.4 mg/g, normal <13) were also normal. Peripheral smear and bone-marrow did not reveal any atypical or blast cells.

Skeletal radiographs revealed generalized osteopenia, collapse of several vertebral bodies, and multiple lytic lesions in long bones with permeative destruction. Abdominal USG was normal. CT scans of the thorax and pelvis also revealed lytic lesions. ^{99m}Tc whole body bone scintigraphy revealed multiple foci of increased or decreased uptake of radioactivity. Iliac bone biopsy revealed some massy, pleomorphic tumoral tissue infiltration composed of tumoral cells with hyperchromatic nuclei, some of which were clear and large, some fusiformly extended, and some with large eosinophylic cytoplasm stemming from atypical cell bundles resembling sporadic rhabdomyoblasts and with a sporadic storiform pattern. An immunohistochemical study showed diffuse staining with vimentin and positive staining with MyoD1 and desmin, only in rhabdomyoblasts, therefore resulting in the histopathologic diagnosis of rhabdomyosarcoma.

Intravenous hydration, furosemide at a dose of 2 mg/kg/day, pamidronate 1 mg/kg/dose twice a week (with a cumulative dose of 4 mg/kg) and calcitonin nasal spray 200 IU twice a day were given for hypercalcemia. No side effects were seen. Serum calcium level normalized (9 mg/dL) on the 14th day of treatment, and treatment for hypercalcemia was stopped. Chemotherapy was given to the patient with a modified EVAC regimen. However, despite initial improvement, the disease progressed to leptomeningeal metastasis. The patient died of progressive illness, having intractable convulsions and worsening consciousness.

DISCUSSION

Up to one-third of adult patients with cancer may develop hypercalcemia during the course of their disease [2]. The incidence of hypercalcemia in rhabdomyosarcoma varies

from 0.4-6.5% [1,3,4]. Rehydration and furosemide therapy increases renal calcium clearance and is useful for treating hypercalcemia. Recently, increased usage of bisphosphonates in children shows inhibition of osteoclastic bone resorption, thus decreasing hypercalcemia [5,6]. Calcitonin inhibits osteoclastic activity, therefore reducing the level of serum calcium. Presenting with a serum calcium of 16.5 mg/dL, our patient was given pamidronate and calcitonin as well as hydration and furosemide and a normal calcium level was attained on the 14th day of treatment.

In conclusion, some cases with malignancy may rarely present with unusual findings such as hypercalcemia, occult primary, diffuse bone involvement and leptomeningeal metastasis.

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