HYPOKALEMIA ASSOCIATED WITH CARCINOID TUMOR OF THE THYMUS AND COMPLICATED BY BILATERAL ADRENAL HEMORRHAGE

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The objective of this report is to describe an index case of hypokalemia resulted from an ectopic ACTH secretion of the thymus.

This is a 36 year-old male presented with one day history of non-traumatic left flank pain. Physical examination was remarkable for blood pressure of 112/75 mmHg, central obesity, left flank tenderness and peripheral edema. Biochemistry data was significant for serum potassium of 2.7 mEq/L, serum bicarbonate of 34 mEq /L and hemoglobin of 12.6 gm/dl. A non-contrasted CT of the abdomen, which was done in response to worsening abdominal pain, showed a large hyperdense mass measuring 12 X 11 X 10 cm situated in the left adrenal and enlarged right adrenal gland measuring 1.5 X 1.4 cm. Few hours later, patient became hypotensive and his hemoglobin dropped to 6.5 gm/dl. An emergent contrasted CT of the abdomen demonstrated worsening right adrenal gland enlargement measuring 4.6X5.2X7 cm. This necessitated an emergent surgical exploration and subsequent bilateral open adrenalectomy. Pathologic examination was consistent with adrenal hemorrhage with no evidence for malignant process. A complete adrenal assessment was remarkable for high ACTH level at 765 pg/ml (10-60 pg/ml), which was increased to 3218 pg/ml after adrenalectomy. Moreover, cortisol level in a 24-hour urine collection was 322-ug/24 hr (3.5-45 ug/24 hr), and a random plasma cortisol while patient was receiving dexamethasone (24 mg/day) was 18 ug/dl. A complete work up for ectopic ACTH disclosed anterior mediastinal mass on a contrasted chest CT scan. A whole body In-pentetreotide scintigraphy demonstrated increased uptake in the anterior mediastinum that correlated with the chest CT mass. Pathological examination of the mediastinal resected mass was consistent with carcinoid tumor arising from the thymus. The tumor cells showed positive staining for ACTH.

This case highlights the complexity of hypokalemia work up in patients with ectopic ACTH hypercortisolism.