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Aldosterone Secreting Adrenal Adenoma with Primary Hyperparathyroidism and Cushing's Disease

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Abstract: ***We are reporting a patient with aldosterone producing adenoma (APA), Cushing's disease and primary hyperparathyroidism***

Keywords: endocrinology

1. Clinical Case

48 year old African American female was referred to endocrinology for right adrenal incidentaloma which was found by abdominal ultrasound. She complained of gaining weight of about 20 kg in 8 months, fatigue, depression, chronic diffuse abdominal pain with history of bilateral kidney stones. She had facial hirsutism but for many years before her illness. Had history of uncontrolled HTN on amlodipine and lisinopril, DM and obstructive sleep apnea. Her Hga1c worsened from 5.9% to 7.5% in 12 months, requiring metformin and glipizide.

2. Exam Findings

BP 154/103, weight 327 lbs, BMI 56, had no striae, Ferriman Gallway score 16/36, and pitting edema in her legs. Adrenal MRI showed 4.0 cm right adrenal adenoma and Bilateral nephrolithiasis. Labs: Calcium 10.3 mg/dl, Albumin 3.2 g/dl, iPTH 146 pg/ml (n 18-86), phosphorus 2.8 mg/dl (n 2.3-5.0), aldosterone 69 ng/dl (n<16.0 ng/dL), renin activity 3.4 ng/ml/hour (n 0.2-1.6 ng/mL/hr), aldosterone to renin ratio (ARR) 19. 8 am cortisol on two occasions 11.6 and 25 mcg/dl after 1 mg dexamethasone night before. Lisinopril and amlodipine were replaced with doxazocin and cardizem, repeated aldosterone level was 20 and renin 0.2 (ARR 105). 24 hr urine on 3 day-salt loading showed urinary aldosterone of 14.4 mcg/24hrs and urinary sodium of 210 mEq/day, 24 hour urine free cortisol was 491 cortisol mcg/g creatinine (n <=45.0). Serum ACTH was 16 and 25 pg/ml (n 6-58) on two occasions, DHEAS 45 mcg/dl (n 32-240), plasma metanephrines were within normal, vitamin D 25 OH 17 ng/ml(n 30-100). She underwent parathyroid sestambi scan which showed increase uptake at right lower pole of thyroid gland. Right lower parathyroidectomy done, pathology confirmed parathyroid adenoma. iPTH at one month post operation was 42 pg/ml, calcium 9.4 mg/dl, albumin 3.2 g/dl. A repeat 8 am level was 9.1 mcg/dl and dexamethasone level 1020 ng/dl after 2 mg dexamethasone night before. By MRI of the pituitary, she had questionable 4 mm hypointense pituitary lesion. She underwent right adrenalectomy which was consistent with aldosterone producing adenoma by pathology. One month after surgery, her blood pressure was improved to 140/80 off medications. Same for blood glucose and was taken off sulfonylurea. Repeated am ACTH 35 pg/ml and cortisol level 3.2 mcg/dl (not sure if taken 1 mg dexamethasone). She had cortisol level of 0.5 mcg/dl (post 8 mg dexamethasone night before). Genetic testing for MEN syndrome and Immuno Histochemical Analysis of the adrenal adenoma are pending.

3. Conclusion

This is a case of APA likely co-secreting cortisol with relative elevation of ACTH which could be an assay related false positivity vs ACTH-dependent cushing.

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