Indian Journal of Clinical Practice, Vol. 29, No. 11, April 2019

Asymptomatic Hypercortisolism

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ABSTRACT

The diagnosis of Cushing's syndrome presents great challenges in determining the etiology of cortisol excess. It must be emphasized that iatrogenic hypercortisolism is the most common cause, the second common cause being pituitary corticotrope adenoma and Carney's syndrome is one of the rarest of causes.

Keywords: Cushing's syndrome, primary pigmented nodular adrenocortical disease, lentigines, bilateral adrenalectomy

Cushing's syndrome presents clinically with central obesity, hypertension, glucose intolerance or diabetes mellitus, moon facies, purple striae, proximal muscle weakness, hirsutism and psychological disturbances. Presented here is the case of a patient who was asymptomatic except for moon facies and family history of Cushing's syndrome. He was admitted for an unrelated symptom.

CASE HISTORY

Mr Kalpesh, an 18-year-old male was investigated for short stature. He was asymptomatic otherwise.

Family history: Sister was diagnosed to have primary pigmented nodular adrenocortical disease (PPNAD) for which bilateral adrenalectomy was done and she was put on steroid replacement therapy.

Physical examination: Patient had short stature, moon face, multiple lentigines on face (freckles) but patient was not anemic.

Blood pressure: 120/80 mmHg in right arm.

Cardiovascular system: S1/S2 +.

Respiratory system: Bilateral vesicular breath sounds heard.

Abdomen: Soft, no organomegaly.

A clinical diagnosis of Cushing's syndrome was made.
Investigations: Complete blood count (CBC) profile: Hemoglobin (Hb) - 10.9 g/dL; packed cell volume (PCV) - 37.1; total count (TC) - 6,600 cells/mm^3; differential count (DC) - $P_{67}L_{30}M_3$; platelet count - 2,76,000; mean corpuscular volume (MCV) - 65.7; mean corpuscular hemoglobin (MCH) - 19.3 and mean corpuscular hemoglobin concentration (MCHC) - 29.4. Blood group: B-positive.

Diabetic profile: Fasting blood sugar - 74 mg/dL; random blood sugar - 129 mg/dL.

Renal function tests: Serum creatinine - 0.7 mg/dL; blood urea - 28 mg/dL.

Thyroid function tests: Serum T_3 - 130 ng/dL (normal 81-178 ng/dL); serum T_4 - 11.6 ng/dL (normal 4.5-12.5 ng/dL); serum thyroid-stimulating hormone (TSH) - 1.46 μIU/mL (normal 0.4-4 μIU/mL).

Liver function tests: Serum alkaline phosphatase (ALP) - 262; serum albumin - 4.9 g/dL; serum glutamic-oxaloacetic transaminase (SGOT) - 32 IU/L; serum glutamic-pyruvic transaminase (SGPT) - 14 IU/L; serum calcium - 9.2 mg/dL; serum phosphorus - 3.6 mg/dL.

Hormone profile: Serum follicle-stimulating hormone (FSH) - 3.34 μIU/mL (normal 2.5-10 μIU/mL); serum luteinizing hormone (LH) - 1.82 μIU/mL (normal 2.5-10 μIU/mL); serum prolactin - 8.18 ng/mL (normal 5-25 ng/mL); basal adrenocorticotropin (ACTH) - 10.3 pg/mL (0-46 pg/mL); basal cortisol - 12.64 μg/mL (normal 5-25 μg/mL); MN cortisol - 13.39 μg/mL. Dexamethasone suppression test: Serum cortisol - 12.64 μg/dL.

Electrocardiogram: Within normal limits.

Chest X-ray PA view: Within normal limits.

X-ray of left hand and wrist (for bone age): 16-17 years.

CT scan neck to pelvis: NAD.

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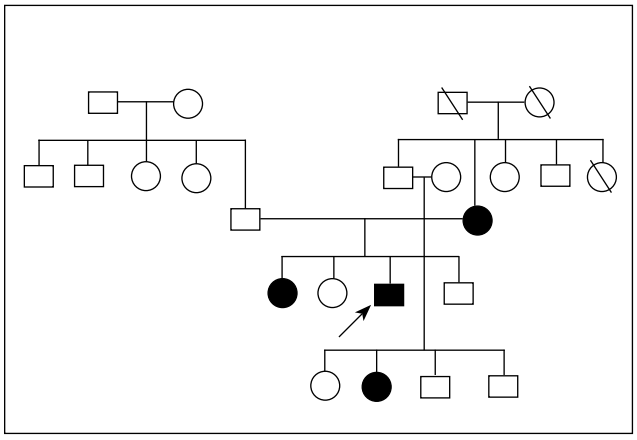
DEXA scan of bone: Showed osteoporosis.

Sexual maturation rating: B1P4.

TV: Bilateral 15 mL.

SPL: Adult size.

Pedigree Analysis



Evaluation of investigations showed ACTH independent endogenous hypercortisolism with nonsuppressed overnight dexamethasone suppression (ODS) cortisol. Rest of hormone profile was normal. CT scan neck to pelvis was done to know the source of ACTH, which was normal. Clinical diagnosis of Carney's complex was made in view of PPNAD in sister and lentigines on the face, which is a feature of Cushing's syndrome. He was evaluated for other components of Carney's complex including 2D-Echo, which was normal. Bilateral laparoscopic adrenalectomy was done. He was then given steroid replacement therapy. The biopsy result confirmed the diagnosis of PPNAD.

DISCUSSION

Carney's complex is an autosomal dominant disorder. It is also known as LAMB syndrome (Lentigines, Atrial myxomas, Mucocutaneous myxoma and Blue nevi) or NAME syndrome (Nevi, Atrial myxoma, Myxoid neurofibroma and Ephelides).

Other than these predominant skin lesions, patients may have Cushing's syndrome, acromegaly, peripheral nerve schwannomas or testicular tumor. These patients frequently have mutations in the tumor suppression genes *PRKARIA*. Cushing's syndrome is due to adrenal tumor and acromegaly is due to pituitary adenoma. This is an ACTH independent Cushing's syndrome diagnosed in children and young adults. There is bilateral adrenal cortical micronodular hyperplasia. It is otherwise known as PPNAD. The adrenals contain small brown-black nodules up to 0.5 cm in diameter with large eosinophilic cells laden with lipofuscin nodules. Carney's complex has been classified in mixed syndromes of MEN 1 or 2. Some patients have gynecomastia due to excess estrogen production.

A correct diagnosis permits a potentially life-threatening disorder to be treated.

CONCLUSION

This case has been presented for its rarity as a hereditary cause of Cushing's syndrome. In addition, the tell tale clinical features of hypercortisolism were missing and patient was asymptomatic. Only a detailed family history helped us to suspect the diagnosis and investigations proved it. Patient is doing well with steroid replacement therapy.

SUGGESTED READING

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Solriamfetol Approved for Obstructive Sleep Apnea

The US FDA has approved solriamfetol to improve wakefulness in adults with excessive daytime sleepiness associated with narcolepsy (75 mg, 150 mg) or obstructive sleep apnea (37.5 mg, 75 mg, 150 mg). It is the first and only dual-acting dopamine and norepinephrine reuptake inhibitor approved by the FDA for this indication and is to be taken orally once-daily.