中文題目：無月經、無第二性徵、高血壓、低血鉀—一個腎上腺 17α 水解酶缺損的個案報告

英文題目：Amenorrhea, Absence of Puberty, Hypertension, and Hypokalemia in a Case of 17α-Hydroxylase Deficiency

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Introduction

Congenital adrenal hyperplasia refers to several disorders characterized by various genetic defects in the enzymes involved in cortisol and sex hormone biosynthesis in adrenal gland. 17α-hydroxylase deficiency is a rare form disease, usually presenting as amenorrhea, no development of puberty, hypertension, hypokalemia, and hypogonadism in female. It is due to the reduction of sex hormones and cortisol productions caused by genetic defect of 17α-hydroxylase and enhanced the production of aldosterone. We ever reported one case before (PLoS ONE 6(9): e25492, 2011.), and this second case was promptly diagnosed from previous clinical experiences.

Case Presentation

A 31-year-old woman had past history of sicca syndrome under regular medical treatment with prednisolone and plaquenil for five years. She was referred for persistent hypertension after treated with three kinds of anti-hypertension drugs (atenolol and exforge). The abdominal CT showed a 1.5 cm nodule over left adrenal gland. Primary aldosteronism was impressed. However, from the facts of hypertension since junior high school, no menarche, lack of secondary sexual characters, and persistently growing in tall even at the end of puberty (176cm) made us consider the possibility of 17α-hydroxylase deficiency from our prior experience. Her parents were in normal percentile of height and denied any family history of delayed or absent puberty. Physical examinations revealed BP 140/100 mmHg, Body length 176 cm, no breast bud, no axillary and no pubic hairs. Laboratory tests showed hypokalemia (3.3mmol/L), Metabolic alkalosis (HCO3 28.9 mmol/L), aldosterone (10.14 ng/dl) but low plasma renin activity (<0.36 pg/ml/h). Summary of current information, primary aldosteronism caused by adrenal tumor was suspected at first. However, further laboratory data showed low levels of sexual hormone and cortisol (estradiol:<20 pg/ml, progesterone: 6.3 ng/dl, cortisol <0.1 ug/dl), low 17a-OH progesterone (0.3 ng/ml), high FSH and LH (98 mIU/ml, 30.8 mIU/ml), and high ACTH (190.83 pg/ml). Thus, congenital adrenal hyperplasia was diagnosed, and we sequenced the eight exons of CYP17A1 gene, which showed Mutation 1: 1459_1467 delGACTCTTTC, deletion of amino acid 487-489 (Asp-Ser-Phe) in exox 8, segregation with mother. Mutation 2: c.985_987delTACinsAA, p. Y329Kfs (termination at aa 418) in exon 6, segregation with father. CYP17A1 genetic defects were confirmed, and she received hormone replacement therapy combined cortisone acetate and spironolacton. After follow up for three years, she was more feminized and no further growth (176.5cm). Hypertension was also under controlled.

Discussion

17α-Hydroxylase deficiency appears to be inherited as an autosomal recessive trait as a rare case of congenital adrenal hyperplasia. How to approach is very importance due to early diagnosis will avoid abnormal growth and help patient to maintain the normal life. But it is difficult to diagnose in such case because of neglect of history and careful physical examination on sexual characters. Based on our prior experience, we can promptly catch the main points and do the right diagnosis to this patient. The laboratory tests of various hormones and the genetic analysis support the diagnosis. Besides, we will also keep on searching the relation of sicca syndrome and congenital adrenal hyperplasia, and also follow the status of adrenal tumor for further evaluation to rule out concurrent adrenal dysfunction.