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Transient pseudohypoaldosteronism and failiure to thrive in a 5-month-old infant

Yoonsuk Lee, Jung Won Lee, Su Jin Cho, Hae Soon Kim
Department of Pediatrics, Ewha Womans University School of Medicine

INTRODUCTION

Hyponatremia with hyperkalemia in infancy may be seen in many endocrinologic and metabolic disorder such as congenital adrenal hyperplasia, congenital adrenal hypoplasia, and other forms of hypoadrenalism in infancy. Here, we report a infants who presented with hyponatremia with hyperkalemia finally diagnosed as pseudohypoaldosteronism (PHA) due to urinary tract infection (UTI) with reflux nephropahy.

CASE

A 5-month-old female initially was transferred for poor weight gain for 2 months. The body weight was 5.0kg (<3rd percentile).

She looks pale and not well-being. Virilization of genitalia or pigmentation were not noted. Initial serum sodium was decreased (125 mEq/L) and serum potassium was elevated (6.1 mEq/L). The serum CRP level was elevated (4.08 mg/dL), and serum ESR level was also elevated (60 mm/hr). Urine analysis revealed pyuria. Intravenous saline and antibiotics were started after urine culture. Catheter urine culture was positive for Serratia marcescens. The initial serum 17-Hydroxyprogesterone level was 0.73 ng/ml and aldosterone level was markedly elevated 17800 pg/ml (normal), urinary sodium centration was 30mg/L, so pseudohypo-aldosteronism (PHA) was diagnosed. Her serum sodium and potassium were normalized after 48 hours of intravenous fluid and antibiotics therapy, and inflammatory markers were also normalized. The VCUG showed right-sided grade 5 and left-sided grade 4 vesicoureteral reflux, the renal sonography showed mild atrophy of right kidney and compensatory hypertrophy of left kidney. The electrolyte levels remained normal range and aldosterone level was decreased without sodium replacement and proper weight gain was achieved.

	0'	30'	60'
Cortisol (ug/dl)	23.2	45.8	52.1
17-OHP (ng/ml)	0.73	3.56	4.46

Table 1. The result of ACTH stimulation test

	HD#0	HD#1	HD#2	HD#3	HD#4	HD#5	HD#11	(HD#20)
Na	125	127	134	137	136	138	141	139
K	6.1	5.4	3.5	4.2	3.9	4.3	4.4	4.5
Cl	90	97	98	99	96	103	107	109
TCO2	20	12	21	24	20	19	21	20

Table 2. Serial change of electrolyte

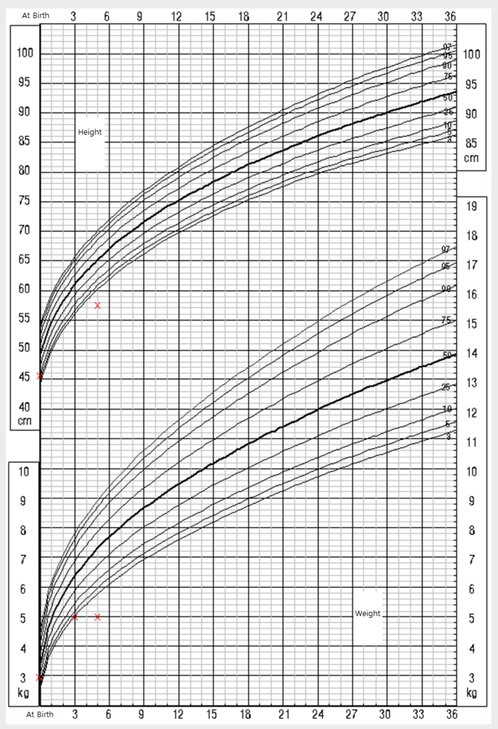

Figure 1. Growth curve of the patient

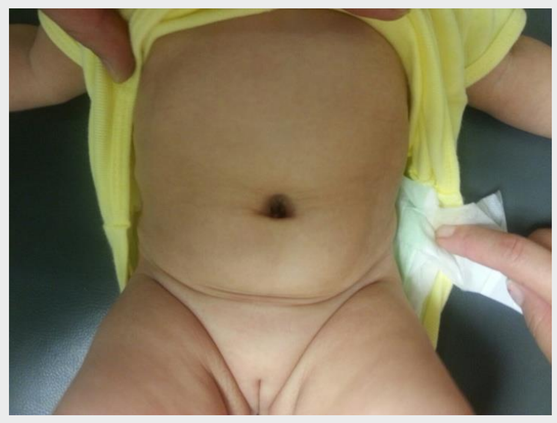

Figure 2. The patient showed no skin color change or virilization

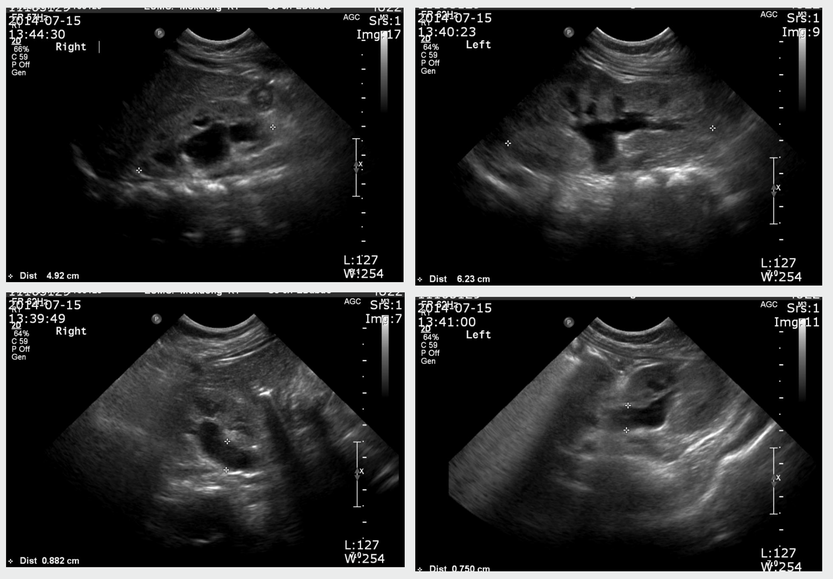

Figure 3. Abdominal ultrasonography revealed mild atrophy of right kidney and compensatory hypertrophy of left kidney, and hydro-ureteronphrosis, more on right than left side - underlying condition such as VUR is most likely suggested

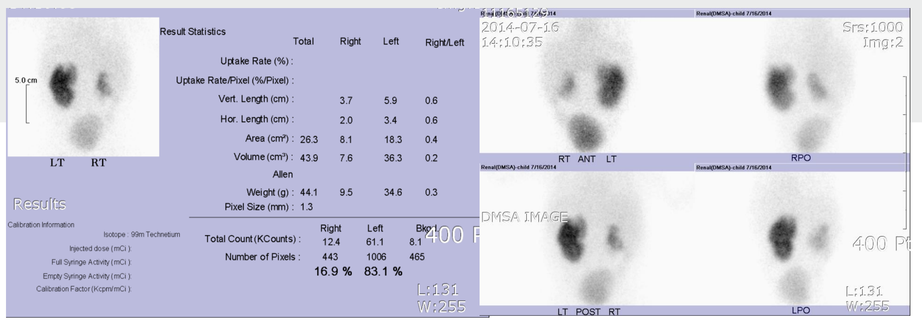

Figure 4. DMSA scan revealed multiple cortical defect in both kidneys and asymmetric size of both kidneys (Lt >> Rt).

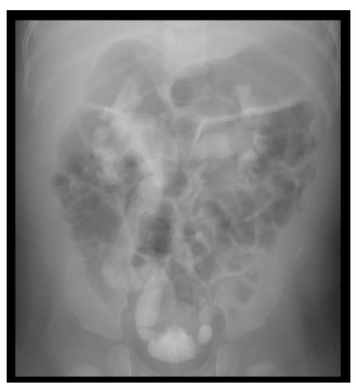

Figure 5. Vesicoureteral reflux (VCUG) study revealed right vesicoureteral reflux (Grade V) and left vesicoureteral reflux (Grade IV)

CONCLUSION

It is important that transient PHA due to urinary tract infection should be considered in infant particularly after the first one month of life with hyponatremia and hyperkalemia without virilization.

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