Hypokalemic metabolic alkalosis in an adolescent female: Questions

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Case summary

A 16-year-old girl was referred to our pediatric nephrology outpatient clinic for further evaluation of hypokalemic metabolic alkalosis. She had applied to her family physician due to amenorrhea for the last 3 months. At the first evaluation, her past medical history was unremarkable; she did not describe muscle cramps, diarrhea, or polyuria; and there was no history of medication use. She had her menarche at the age of about 12 years. Her complaints started 3 months ago with daily vomiting after every meal, and she lost almost 12 kg in this period. There was no parental consanguinity, and she did not have a family history of kidney disease.

On admission, physical examination was normal except for body weight; she was 42 kg (< 3rd percentile), and her body

mass index (BMI) was 16 kg/m² (< 5th percentile, underweight). Her height was 162 cm (50th percentile). Her ideal weight for height was 55 kg (her weight/ideal weight for height percentage was 75%). Blood pressure was 100/70 mmHg (50th percentile). Motor, mental, and pubertal development was normal for her age.

Laboratory investigations revealed hypokalemic metabolic alkalosis; potassium was 2.6 mEq/L, bicarbonate was 33 mEq/L, and pH was 7.52. Serum creatinine was 0.66 mg/dL and serum electrolytes other than potassium were in the normal range: Sodium was 137 mEq/L (132–146 mg/dL), calcium was 9.1 mg/dL (9.1–10.3 mg/dL), phosphorus was 3.4 mg/dL (2.9–4.8 mg/dL), magnesium was 2.1 mg/dL (1.3–2.7 mg/dL), and chloride was 101 mEq/L (99–109 mEq/L). Serum albumin level was also normal (48 g/L).

She did not have hematuria, proteinuria, or pyuria; urine culture was sterile. Plasma renin activity and serum aldosterone levels were normal. Urinary calcium, potassium, sodium, and chloride excretions were normal. The kidney and the bladder ultrasound was also normal.

The answers to these questions can be found at <https://doi.org/10.1007/s00467-021-04989-x>.

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Questions

1. What is the most likely diagnosis in this patient?
2. How should this patient be further managed?

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