CPC-1

A 10 year old boy was brought to emergency department with history of nausea, vomiting and tiredness for the past few days. On the day of admission he could not walk after waking up from sleep.

The past medical history included history of failure to thrive and he was diagnosed to have hyperchloremic metabolic acidosis.
He was on supplementation of Citric acid monohydrate (334mg/5ml) and Potassium citrate (1100 mg/5 ml).
He was prescribed 3 mmol of bicarbonate equivalent per kilogram per day.
He checked his electrolytes before a planned vacation and the results were as follows:

1. Plasma Sodium- 138 meq/l,
2. Potassium- 3.9 meq/l,
3. Chloride- 101 meq/l,
4. Bicarbonate- 23 meq/l.

He received a refill of Potassium chloride and proceeded for vacation.
He was compliant with his medications.

On Examination:

General Examination:

1. He was afebrile,
2. Weight 23Kg,
3. Height 123 cm,
4. Blood pressure 90/50 mm of Hg,
5. Pulse rate 112 bpm,
6. Respiratory rate 20 breaths/minute.

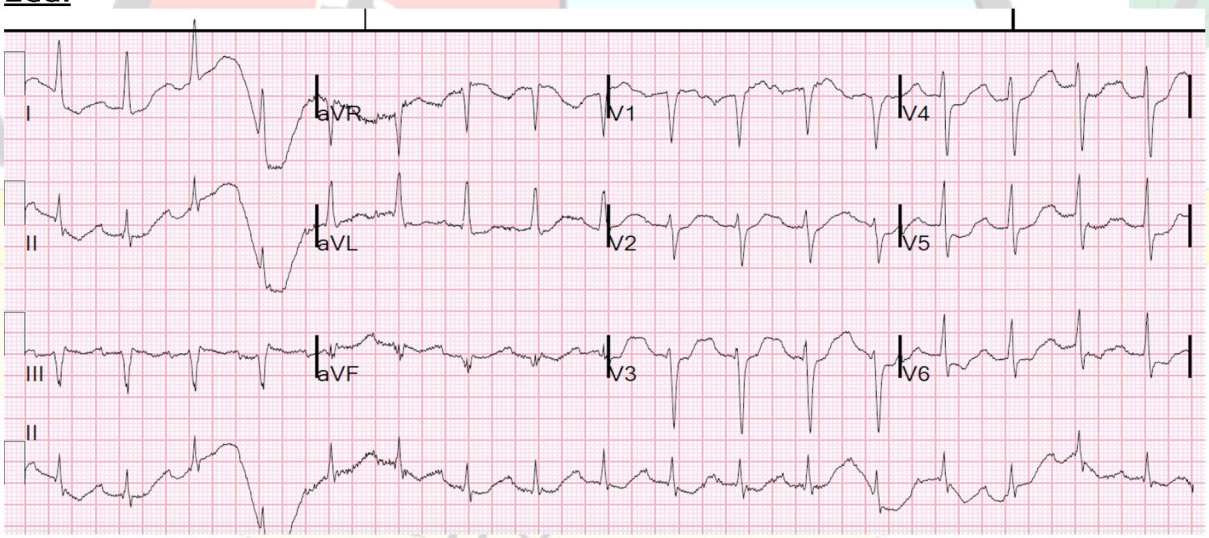
Systemic Examination:

1. Examination of Cardiovascular and respiratory systems were normal.
2. Abdominal examination was unremarkable except for a sluggish bowel sounds.
3. Examination of Central Nervous system showed pt. was conscious, oriented.
4. Muscle power: 1/5 in the lower limbs and 4/5 in the upper limbs.

Blood Parameters:

Parameter	Result
Complete blood count	Normal.
Electrolytes: (meq/l) Sodium Potassium Chloride Bicarbonate	 136 1.9 110 16
BUN (mg/dl) Creatinine (mg/dl)	10 0.4
ABG: pH pCo_2	 7.32 25 mm
Urine: pH Specific gravity Albumin RBC Glucose Leucocytes Nitrites	 7.5 1005 Nil Nil Nil Negative Negative

ECG:



Questions:

1. What is the abnormality noted in his laboratory parameters?
2. Justify your finding, step by step explaining the pathology.
3. How do you manage the crisis?