ACQUIRED BARTTER SYNDROME DUE TO STREPTOMYCIN

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INTRODUCTION & AIMS

Bartter syndrome is an autosomal recessive renal tubular disorder characterized by

Hypokalemia, metabolic alkalosis, hypocalcemia, hypomagnesemia & hypercalciuria

Acquired(Pseudo) Bartter syndrome has been commonly reported with diuretic and laxative abuse, anorexia nervosa, cyclical vomiting and cystic fibrosis [1,2]

Among aminoglycosides, it has been described with gentamicin in few case reports [1,2,3]

We report a case with similar conglomeration of electrolyte imbalance, but in an unusual setting with streptomycin

CASE

74 year old lady known case of diabetes mellitus, hypertension, and hypothyroidism was started on first line Anti- tubercular drugs- isoniazid (INH), rifampicin, pyrazinamide (PZA) and ethambutol (HRZE4) for pulmonary tuberculosis with pleural effusion (sputum AFB+).
Her initial ABG and electrolytes were as follows:

ABG ANALYSIS	
pH	7.41
pCO2	40 mm Hg
pO2	92mm Hg
HCO3	24 meq/L

Serum :	
Sodium	130 meq/L
Potassium	3.6 meq/L
Chloride	99 meq/L
Creatinine	0.6 mg/dl

Serum:	
Calcium	8.7 mg%
Albumin	3.0 g%
Phosphorus	3.8 mg%
Magnesium	2.0 mg%

She developed drug induced hepatitis with first line drugs. So rifampicin /INH/ PZA were discontinued & started on second line of drugs streptomycin, moxifloxacin, ethambutol, and clarithromycin

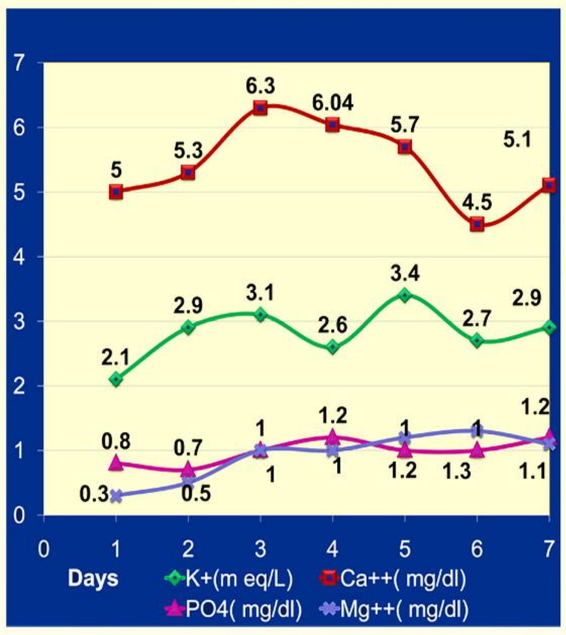
Two weeks later, she developed convulsions and involuntary movements. On evaluation she had hypokalemia, hypomagnesemia, hypocalcemia, hypophosphatemia and metabolic alkalosis which persisted even after standard replacement therapy (Graph 1 & 2).

Urine analysis showed TTKG > 20, urine spot k^+ - 70 meq/l and 24 hour urine analysis confirmed the loss of potassium, magnesium and calcium in urine.
Her renal function remained normal

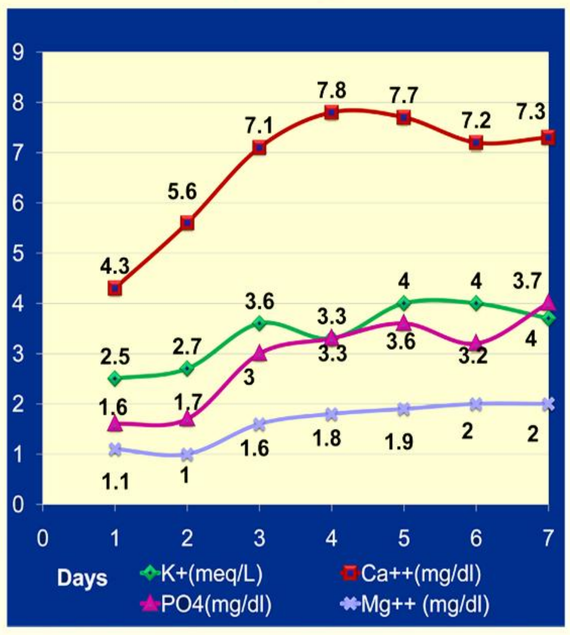
24 hour urine volume	-	1700 ml
potassium	-	110meq (normal range 40-80 meq)
calcium	-	639mg (normal range 50-200 mg)
Magnesium	-	549mg (normal range 24-255mg)
Phosphorous	-	950mg (normal range 500-1200mg)

After discontinuing streptomycin, her electrolyte abnormalities and metabolic alkalosis improved over a weeks (Graph 3 & 4)

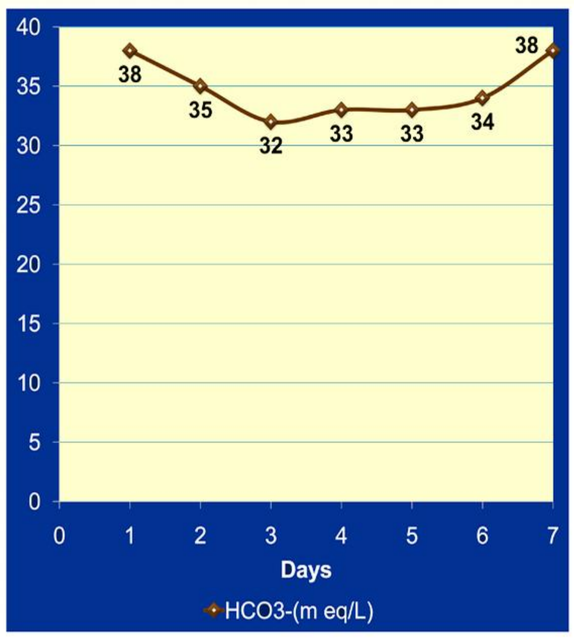
1. Persistent electrolyte disturbances on streptomycin



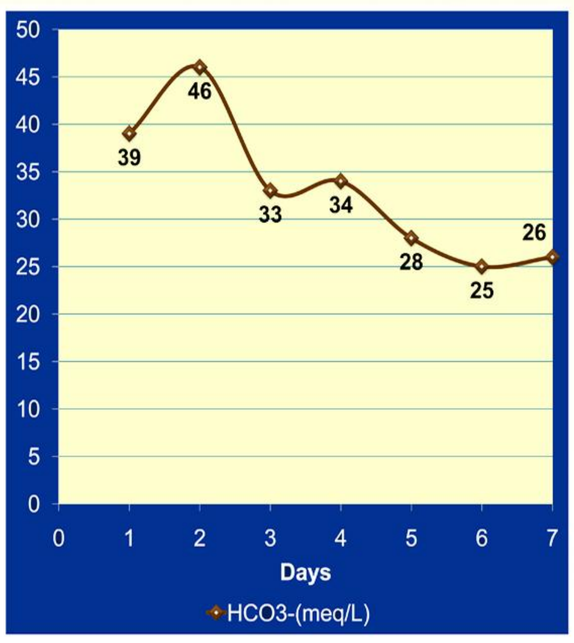
3. Improvement of electrolyte disturbances after stopping streptomycin



2. Persistent Alkalosis on Streptomycin



4. Improvement in alkalosis after stopping streptomycin



CONCLUSIONS

Ours is a rare case report of renal electrolyte wasting that mimicked Bartter syndrome and was induced by streptomycin

Aminoglycosides not only cause acute kidney injury but also can cause serious electrolyte disturbances in the form of Acquired bartter's syndrome.

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