Content available at: https://www.ipinnovative.com/open-access-journals

IP Indian Journal of Neurosciences

Journal homepage: https://www.ijnonline.org/

Case Series

Dry eyes, dry mouth & dormant limbs - A case series

Poornima Nair[1],*, K Sivakumar[2]

[1]*Dept. of Neurology, Government Medical College, Thiruvananthapuram, Kerala, India*
[2]*Dept. of Medicine, Government Medical College, Coimbatore, Tamil Nadu, India*

ARTICLE INFO

Article history:
Received 24-05-2023
Accepted 30-06-2023
Available online 28-07-2023

Keywords:
Primary Sjogren's syndrome
Distal renal tubular acidosis
Hypokalemic paralysis

ABSTRACT

Hypokalemic paralysis is a rare complication of distal renal tubular acidosis from any cause. Those cases diagnosed to have primary Sjogren's syndrome are rare. Renal tubular acidosis caused by tubulointerstitial nephropathy is an extra glandular manifestation of primary Sjogren's syndrome.
We report three cases of flaccid quadriparesis diagnosed to have hypokalemia due to distal renal tubular acidosis and on further evaluation found to be Sjogren's syndrome.

1. Case Series

1.1. Case 1

37 years old female with no significant comorbidity was admitted with repeated episodes of vomiting and loose stools followed by sudden onset weakness of all four limbs since 2 days initially involving lower limbs which later progressed to upperlimbs. No history of altered sensorium or breathing difficulty.

Patient was afebrile with stable vitals. Neurological examination revealed areflexic flaccid quadriplegia with normal higher mental function without cranial nerve, sensory or autonomic involvement. Other system examination was within normal limits.

Investigations showed anemia, leukocytosis, deranged renal parameters (urea 45 mg/dl, creatinine- 1.2 mg/dl) with low serum potassium 1.8meq/l. ECG showed U waves with T inversions in the anterior chest leads. Nerve conduction study was normal. Patient was treated with KCL infusion followed by KCL syrup. Correction of potassium resulted in improvement of symptoms.

Arterial blood gas analysis revealed metabolic acidosis with normal anion gap. Urine analysis showed a high urine anion gap with high urine spot potassium (45mEq/L). A conclusion of distal renal tubular acidosis was made. Serum magnesium was normal (1.8 mg/ dl). Serum calcium was low 7.4mg/dl. Thyroid function tests revealed subclinical hypothyroidism.

ANA was weakly positive with granular pattern. ANA profile screening revealed strongly positive SSA-Ro and SSB-La with titers 176.88 and 44.62 respectively. Salivary gland biopsy demonstrated focal aggregates of lymphocytes in favor of Sjogren's syndrome.

Patient was given intravenous potassium chloride correction, sodium bicarbonate capsules, and low dose steroids. Patient improved, hence discharged and kept under regular follow up.

1.2. Case 2

A 30 year old female was admitted with subacute onset gradually progressing weakness of all four limbs of 1 week duration. History of two similar episodes six months and four months ago recovered within one week with treatment.Patient had history of multiple joint pain, burning

* *Corresponding author*.
E-mail address: pnairbhavana@gmail.com (P. Nair).

https://doi.org/10.18231/j.ijn.2023.021

sensation and dryness in the mouth.

General examination was normal with stable vital signs. No enlarged lymph node or parotid gland was present. Neurological examination revealed symmetrical flaccid quadriparesis with diminished reflexes and mute plantar reflexes sparing the cranial nerves, sensory and autonomic systems.

Laboratory investigations showed normal blood counts with ESR 48mm/hr; Serum potassium 2.2meq/L; Serum sodium 135 mmol/L. ECG showed prominent U waves. Arterial blood gas analysis revealed metabolic acidosis with PH 7.28, bicarbonate 15 mmol/l and normal anion gap. Urine spot potassium was 21mEq/L. Liver and renal function tests were normal. Serum magnesium was 2.5 mg/dL which ruled out Bartter's syndrome.

Autoantibody screening revealed positive ANA titre of 1:400 with speckled pattern. SSA-Ro and SSB-La were strongly positive with which diagnosis of Sjogren's syndrome was made. Schirmer test was negative. salivary gland biopsy demonstrated multiple foci of lymphocytic and plasma cell infiltrates suggestive of Sjogren's syndrome.

Patient was treated with potassium supplements. She was maintained on potassium chloride solution, oral sodium bicarbonate and low dose steroids. Patient improved and was kept under regular follow up.

1.3. Case 3

A 30 year old female with no prior comorbidities was admitted with acute onset weakness of both lower limbs since 3 days. She had no other complaints.

General examination showed the presence of dry skin with stable vitals. She had normal higher mental function, cranial nerves and motor system examination. However deep tendon reflexes were sluggish and plantar was bilaterally flexor.

Investigations showed a normal blood picture; ESR 5 mm/ hr; serum potassium 1.8 meq/ L. T3 0.25 ng/dl; T4 0.63 microgram/ dl; TSH > 100 mIU/ L.; Serum magnesium 2.1 mg/ dl; Arterial Blood analysis showed renal tubular acidosis with normal anion gap. AntiTPO antibody was 382.88 IU/ml. ECG showed PR interval prolongation. Peripheral smear showed dimorphic anemia. Ultrasound abdomen and neck was normal.

Antithyroglobulin antibody level was 389.57 IU/ ml. ANA profile showed strong positivity to antiSSA and antiSSB. Minor salivary gland biopsy showed plasma cell infiltrates.

She was managed with iv and oral potassium supplementation, low dose steroids and supplementary thyroxine. Her weakness significantly improved and she was kept under follow up.

2. Discussion

Primary Sjogren's syndrome[1] is a chronic autoimmune disease characterized by destructive lymphocyte infiltration of the salivary and lacrimal glands resulting in dry eyes and dry mouth. Despite extensive studies of the underlying causes of pSS, the pathogenesis remains obscure.

Diagnosis of pSS according to the current American-European Consensus Group (AECG)[1] criteria requires at least four of the following six items: Subjective xerostomia, an objective test for xerophthalmia, objective evidence of salivary gland dysfunction, the presence of either anti-Ro/SSA or anti-La/SSB antibodies, and histopathological criteria for pSS on a minor salivary gland biopsy. One of the four criteria must be either serologically or histopathologically positive out of 4. Any 3 of the 4 objective criteria is diagnostic of Sjogrens.

In our first case anti-SS-A(Ro) and anti-SS-B(La) were positive along with positive Schirmer test and salivary gland biopsy. The second case had history of xerostomia with positive antibody, histopathology and schirmer test. Third case had associated Hashimoto thyroiditis with hypokalemia and positive biopsy but without any sicca symptoms.[2]

Polyneuropathy or mononeuropathy is the most common neurological manifestations in PSS, with central nervous system (CNS)[3] involvement being less common. Central nervous system disease in PSS may include focal brain lesions, which may present as a stroke-like episode or appear more gradually. Optic Neuritis, focal paresthesia, and brain stem syndromes like Central pontine myelinolysis[3] are rare features of PSS.

A reduction in urinary concentrating capacity is the most common defect, and other renal defects[4] include a reduction in creatinine clearance, distal RTA, and nephrotic syndrome. Apart from systemic lupus erythematosus (SLE), most of the renal damage associated with PSS involves renal interstitial lesions. Glomerular damage is infrequent and mild. Renal tubular acidosis,[5] especially type 1 which accounts for 91.7% of all types of RTA in PSS, is the main cause of hypokalemia along with normal anion gap metabolic acidosis.

The characteristics of hypokalemia in our patients were consistent with the diagnosis of distal RTA. Of the different types of RTA associated with hypokalemia,[6] distal RTA may be due to a defect in proximal tubular reabsorption. Hypokalemia, although common in the two types of RTA, is severe and symptomatic in type 1 RTA.[5,6] The gold standard test used to distinguish between the two types of RTA involves measuring the level of fractional HCO3 excretion, which is typically >20% in type 2 RTA.

Treatment consists of symptomatic management in milder cases, cyclophosphamide and steroids or other immunosuppressants[2] (chlorambucil or azathioprine) in cases with progressive symptoms leading to neurological

impairment. Treatment of distal RTA involves the oral intake of sodium bicarbonate along with potassium supplementation as a citrate in order to keep the serum K+ levels normal and serum HCO3 levels at >18 meq/L. Renal tubular acidosis is very rarely reported in patients with thyroid disorders such as hypo- thyroidism.[7] The coexistence of SS and thyroiditis is frequent and suggests a common genetic or environmental factor predisposition with similar pathogenic mechanisms. pSS is ten times more frequent in patients with autoimmune thyroid disease and autoimmune thyroiditis is nine times more frequent in pSS. Therefore, SS should be studied in patients with thyroid disease and vice versa. pSS and thyroid disease patients are mostly women with positive antithyroglobulin, antiparietal cell and antithyroid peroxidase antibodies.[8] Thyroid dysfunction is frequent in pSS patients and those prone to develop thyroid disorders are identified by thyroid-related autoantibodies or by rheumatoid factor and anti-Ro/SSA activity. Hypothyroidism is the most common autoimmune disease in developed in pSS patients during follow-up of 10.5 years.

3. Conclusion

Patients who potentially have PSS might be easily overlooked by doctors because of the non-specific symptoms of this disease.

This case series highlights the importance of knowing the varied presentation of pSS, especially RTA, in order to avoid a delay in diagnosis and initiate treatment at the earliest.

4. Learning Points

1. Hypokalaemia of renal tubular acidosis (RTA) can be sufficiently severe to produce flaccid quadriparesis.
2. Presence of metabolic acidosis in hypokalemic patients is an important clue to the possibility of RTA.
3. Sjogren's syndrome can present with RTA in the absence of sicca symptoms.
4. Demonstration of chronic tubulointerstitial nephritis in renal biopsy supports a diagnosis of underlying Sjogren's syndrome in patients with RTA.

5. Conflict of Interest

None.

6. Source of Funding

None.

References

1. Vitali C, Bombardieri S, Jonsson R, Moutsopoulos HM, Alexander EL, Carsons SE, et al. Classification criteria for Sjögren's syndrome: a revised version of the European criteria proposed by the American-European Consensus Group. *Ann Rheum Dis*. 2002;61(6):554–8. doi:10.1136/ard.61.6.554.
2. Lin DF, Yan SM, Zhao Y, Zhang W, Li MT, Zeng XF, et al. Clinical and prognostic characteristics of 573 cases of primary Sjögren's syndrome. *Chin Med J (Engl)*. 2010;123(22):3252–7.
3. Yoon KH, Fong KY, Koh DR, Suri R. Central pontine myelinolysis-a rare manifestation of CNS Sjogren's syndrome. *Lupus*. 2000;9(6):471–3. doi:10.1191/096120300678828550.
4. Bossini N, Savoldi S, Franceschini F, Mombelloni S, Baronio M, Cavazzana I, et al. Clinical and morphological features of kidney involvement in primary Sjögren's syndrome. *Nephrol Dial Transplant*. 2001;16:2328–64.
5. Baburaj P, Khanna L. Secondary Sjogren's syndrome and scleroderma presenting as renal tubular acidosis. *J Assoc Physicians India*. 2007;55:78–9.
6. Soy M, Pamuk ON, Gerenli M, Celik Y. A primary Sjögren's syndrome patient with distal renal tubular acidosis, who presented with symptoms of hypokalemic periodic paralysis: Report of a case study and review of the literature. *Rheumatol Int*. 2005;26(1):86–9. doi:10.1007/s00296-005-0587-9.
7. Yaxley J, Pirrone C. Review of the diagnostic evaluation of renal tubular acidosis. *Ochsner J*. 2016;16(4):525–30.
8. Jara LJ, Navarro C, Brito-Zerón MP. Thyroid disease in Sjögren's syndrome. *Clin Rheumatol*. 2007;26(10):1601–6. doi:10.1007/s10067-007-0638-6.

Author biography

Poornima Nair, Senior Resident

K Sivakumar, Professor of Medicine

Cite this article: Nair P, Sivakumar K. Dry eyes, dry mouth & dormant limbs - A case series. *IP Indian J Neurosci* 2023;9(2):105-107.