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Internal Medicine

A COMPLEX CASE OF MULTIPLE MYELOMA WITH SECONDARY SJÖGREN'S SYNDROME AND DISTAL RENAL TUBULAR ACIDOSIS

KEY WORDS: multiple myeloma, sjogrens, distal renal tubular acidosis

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ABSTRACT

We present a diagnostically challenging case of a 43-year-old woman who initially presented with bilateral lower limb weakness due to persistent hypokalemia. Further evaluation revealed the rare coexistence of multiple myeloma (MM), secondary Sjögren's syndrome, and distal renal tubular acidosis (dRTA). Laboratory Rindings included anemia, hypercalcemia, and a non-anion gap metabolic acidosis. Serum protein electrophoresis identiRied an M-spike with IgG-kappa monoclonality and a signiRicantly elevated kappa:lambda free light chain ratio. Bone marrow biopsy conRirmed MM with 35% clonal plasma cells. Clinical features such as parotitis, a positive Schirmer's test, and autoantibodies (ANA, anti-Ro/SSA) established the diagnosis of secondary Sjögren's syndrome. High urine pH, persistent hypokalemia, and a positive urinary anion gap conRirmed dRTA. The patient responded well to VCD (bortezomib, cyclophosphamide, dexamethasone) chemotherapy and supportive care, achieving partial remission with notable clinical improvement.

INTRODUCTION

Multiple myeloma (MM) is a malignant plasma cell disorder typically presenting with renal dysfunction, anemia, and bone lesions. Its association with autoimmune diseases like Sjögren's syndrome is uncommon. Sjögren's is an autoimmune exocrinopathy that can extend beyond glandular involvement, affecting organs such as the kidneys. Distal renal tubular acidosis (dRTA), though recognized in Sjögren's, arises from immune-mediated tubular injury.

Secondary Sjögren's syndrome can develop in the context of other autoimmune or hematologic disorders, with MM being an infrequent culprit-reported in less than 1% of cases[9]. Persistent immune dysregulation in MM may trigger such autoimmune phenomena. Here, we report a rare case of MM complicated by secondary Sjögren's syndrome and dRTA, presenting with hypokalemic paralysis.

Case Presentation

A 43-year-old woman presented with sudden-onset bilateral lower limb weakness and generalized fatigue. Neurological examination showed marked motor weakness (power 1/5) in both lower limbs, without sensory involvement.

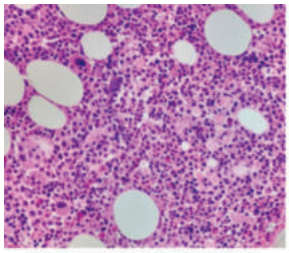
Initial investigations revealed severe hypokalemia (serum potassium 1.9 mmol/L), anemia (Hb 8.6 g/dL), hypercalcemia (11.4 mg/dL), metabolic acidosis (bicarbonate 14 mmol/L), and elevated creatinine (2.1 mg/dL). Urine analysis revealed a pH >5.5 and a positive urinary anion gap, suggestive of dRTA. ECG showed U-waves, characteristic of hypokalemia. Despite aggressive potassium supplementation, hypokalemia persisted for over a week.

Given the constellation of hypercalcemia, albumin-globulin reversal, and radiographic evidence of lytic bone lesions, multiple myeloma was suspected. Serum protein electrophoresis(Figure 2) demonstrated an M-spike, and immunoRixation conRirmed IgG- kappa monoclonality. Serum free light chain assay revealed a kappa:lambda ratio of 27 (kappa 220 mg/L, lambda 8.1 mg/L). Bone marrow biopsy (Figure 1A) conRirmed 35% clonal plasma cells. IHC markers done bone marrow biopsy showed Positive for CD138 and Kappa, Negative for Lambda(Figure 3). Bence Jones proteinuria was also detected.

Further history revealed complaints of dry mouth and eyes. On examination, bilateral parotid swelling was noted. Schirmer's test was positive (≤5 mm wetting in 5 minutes bilaterally). Autoimmune workup showed positive ANA and anti-Ro/SSA antibodies. Salivary gland ultrasound revealed heterogeneous echotexture with hypoechoic areas, indicative of chronic parotitis. Based on the ACR-EULAR criteria, a diagnosis of secondary Sjögren's syndrome was established.

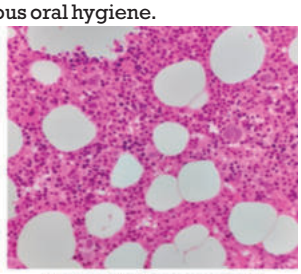
MANAGEMENT AND OUTCOME

The patient was treated with intravenous potassium chloride and bicarbonate, followed by oral potassium citrate to maintain electrolyte balance. Muscle strength improved signiRicantly within a week. For multiple myeloma, she was initiated on the VCD chemotherapy protocol—bortezomib (1.3 mg/m²), cyclophosphamide (300 mg/m²), and dexamethasone (20 mg)—administered weekly. Patient initially required blood transfusions in view of anemia. Supportive measures for Sjögren's included artiRicial tears, saliva substitutes, and meticulous oral hygiene.



Normocellular marrow with increase in plasma cells. July-2023.

Figure 1A



Normocellular marrow with no abnormal cells. August 2024.

Figure 1B

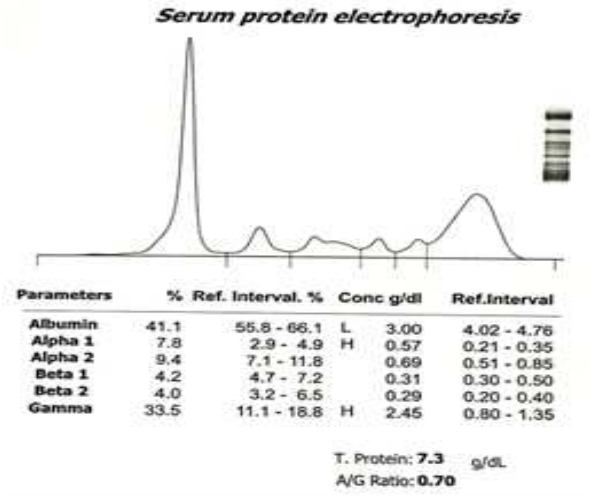


Figure 2

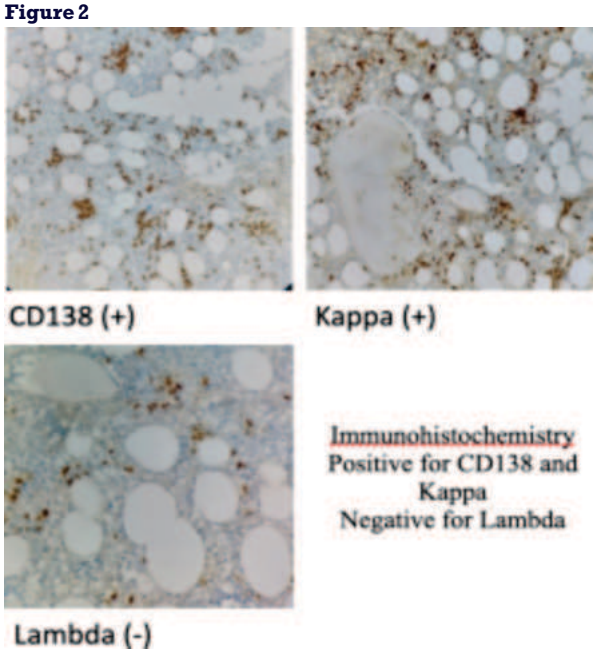


Figure 3

After four weeks, there was marked improvement in renal function (serum creatinine reduced to 1.6 mg/dL), correction of metabolic acidosis (bicarbonate 22 mmol/L), and stabilization of potassium levels (3.5 mmol/L). Repeat serum protein electrophoresis showed a signiRicant reduction in M-protein levels. Bone marrow reassessment after three chemotherapy cycles revealed <10% plasma cells (Figure 1B). Clinically, the patient became transfusion-independent and reported a substantial improvement in quality of life. She is currently being evaluated for autologous stem cell transplantation as consolidation therapy.

DISCUSSION

This case highlights an unusual triad of multiple myeloma, secondary Sjögren's syndrome, and distal renal tubular acidosis. The presenting feature of hypokalemic paralysis led to the diagnosis of dRTA, with typical Rindings of non-anion gap metabolic acidosis, alkaline urine, and a positive urinary anion gap[6].

The diagnosis of secondary Sjögren's was made in the context of established multiple myeloma. According to the ACR-EULAR classiRication, secondary Sjögren's is diagnosed when sicca symptoms and glandular involvement occur in association with another systemic autoimmune or hematologic disease[5]. In this patient, sicca symptoms developed after the onset of MM, with serological evidence of autoimmune activation likely driven by paraneoplastic immune dysregulation.

Although renal involvement is common in MM[4,7,8], dRTA due to Sjögren's complicates the clinical picture. The markedly skewed kappa:lambda ratio and M-spike were pivotal in identifying the underlying plasma cell dyscrasia. Comprehensive integration of hematological, immunological, and renal assessments enabled timely diagnosis and management.

Sjögren's syndrome has been associated with systemic lupus erythematosus, rheumatoid arthritis, autoimmune thyroiditis, and primary biliary cholangitis[3,5]. However, its association with distal renal tubular acidosis remains rare[6].

This case underscores the signiRicance of considering paraneoplastic autoimmune phenomena in patients with plasma cell disorders and atypical presentations. Early recognition and a multidisciplinary approach can substantially improve outcomes.

Learning Points

Always evaluate for underlying causes of persistent hypokalemia and metabolic acidosis, especially when standard correction fails.

Distal RTA, although uncommon, can be the Rirst manifestation of autoimmune or hematologic diseases.

Multiple myeloma can present with atypical autoimmune complications like secondary Sjögren's syndrome.

A multidisciplinary and investigative approach is crucial for complex presentations involving renal, neurological, and systemic features.

Follow-Up

The patient continued VCD chemotherapy and supportive care. At the 3-month follow-up, she had stable renal function (serum creatinine ~1.4 mg/dL), no recurrence of hypokalemic episodes, and further reduction in monoclonal protein levels. Repeat bone marrow examination conRirmed partial remission. She remains clinically stable and is planned for autologous stem cell transplant.

CONCLUSION

A broad differential diagnosis is essential in patients presenting with neuromuscular weakness and electrolyte imbalances. The rare co-occurrence of multiple myeloma, secondary Sjögren's syndrome, and distal renal tubular acidosis, though uncommon, should be considered in complex cases. Interdisciplinary collaboration played a crucial role in achieving a favorable clinical outcome for our patient.

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